Pennsylvania Department of Environmental Protection

Northcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0228079**
Facility Type	**Municipal**	APS ID	**1099808**
Major / Minor	**Minor**	Authorization ID	**1459842**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Middleburg Municipal Authority**	Facility Name	**Kissimmee Wastewater Treatment Plant**
Applicant Address	13 N Main Street	Facility Address	1432 Kissimmee Road
	Middleburg, PA 17842-1082		Middleburg, PA 17842
Applicant Contact	Dustin Zechman	Facility Contact	Dustin Zechman
Applicant Phone	(570) 716-6308	Facility Phone	(570) 716-6308
Client ID	51628	Site ID	497903
Ch 94 Load Status	Not Overloaded	Municipality	Franklin Township
Connection Status	No Limitations	County	Snyder
Date Application Received	October 26, 2023	EPA Waived?	Yes
Date Application Accepted	November 29, 2023	If No, Reason	

Purpose of Application: Renewal of an existing NPDES permit for the discharge of treated sewage.

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		Derek S. Garner / Project Manager	October 16, 2024
X		Nicholas W. Hartranft, P.E. / Environmental Engineer Manager	October 17, 2024

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.02
Latitude	40º 47' 37.81"	Longitude	-77º 5' 15.82"
Quad Name	Middleburg	Quad Code	1229
Wastewater Description:	Sewage Effluent		

Receiving Waters	UNT to Middle Creek	Stream Code	17827
NHD Com ID	54966971	RMI	0.13
Drainage Area (mi^2)	0.3	Yield (cfs/mi^2)	0.125
Q_{7-10} Flow (cfs)	0.04	Q_{7-10} Basis	Station No. 1555000
Elevation (ft)	600	Slope (ft/ft)	0.03
Watershed No.	6-A	Chapter 93 Class.	CWF
Existing Use	n/a	Existing Use Qualifier	n/a
Exceptions to Use	n/a	Exceptions to Criteria	n/a
Assessment Status	Impaired		
Cause(s) of Impairment	Siltation, Pathogens		
Source(s) of Impairment	Agriculture, Unknown Sources		
TMDL Status	n/a	Name	n/a

Nearest Downstream Public Water Supply Intake	SUEZ Water		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	2,360
PWS RMI	76.73	Distance from Outfall (mi)	60

Treatment Facility Summary

The Kissimmee Wastewater Treatment plant is an extended aeration package treatment plant rated for a hydraulic capacity of 0.02 MGD and organic capacity of 40.1 lb/day. Original construction and operation of the facility is covered under WQM Permit No. 5500401, issued June 4, 2000. Treatment generally consists of:

- One (1) comminutor
- One (1) EQ tank
- One (1) aeration basin
- One (1) secondary clarifier
- One (1) UV light disinfection unit
- One (1) aerated digester

Sludge is disposed of at the Middleburg Wastewater Treatment Plant (NPDES Permit No. PA0020583).

Disinfected effluent is ultimately discharged via Outfall 001 to an unnamed tributary of Middle Creek.

Compliance History

The facility was most recently inspected by DEP on August 9, 2024. The inspection report notes that all required treatment units were online and operational, and that a clear discharge was observed at the outfall. No violations were noted.

The following effluent violations occurred during the existing permit's term:

Noncompliance Date	Parameter	Sample Value	Violation Condition	Permit Value	Units	SBC
10/21/2020	Ammonia-Nitrogen	< 4.8	>	3.7	mg/L	Average Monthly
10/21/2020	Ammonia-Nitrogen	9.4	>	5.6	mg/L	Weekly Average
10/21/2020	Ammonia-Nitrogen	9.4	>	7.4	mg/L	Instantaneous Maximum
11/20/2020	Ammonia-Nitrogen	6.4	>	5.6	mg/L	Weekly Average
11/20/2020	Ammonia-Nitrogen	7.4	>	3.7	mg/L	Average Monthly
11/20/2020	Ammonia-Nitrogen	8.4	>	7.4	mg/L	Instantaneous Maximum
7/19/2021	Ammonia-Nitrogen	6	>	3.7	mg/L	Average Monthly
7/19/2021	Ammonia-Nitrogen	7	>	5.6	mg/L	Weekly Average

The above violations are not indicative of chronic noncompliance and should not impact development of the permit's effluent limits.

There are no open violations associated with the permittee.

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.02
Latitude 40º 47' 38.00" **Longitude** -77º 5' 15.50"
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)

Water Quality-Based Limitations

DEP models in-stream conditions to determine if WQBELs are appropriate. A model was created using WQM 7.0 v1.1 to evaluate possible WQBELs for CBOD5, ammonia-N, and dissolved oxygen.

The water quality model WQM 7.0 v1.1 is used to determine the WQBELs for dissolved oxygen, CBOD5 and ammonia-n (NH3-N) based on a multiple-discharge analysis, if applicable. The model assumes complete and instantaneous mixing with the receiving surface water. The reach chosen to model the in-stream characteristics is appropriate as a recovery in dissolved oxygen levels is demonstrated. The modeling output is as follows:

Parameter	Discharge Conc. (mg/l)	Effluent Limitations		
		30 Day Average (mg/l)	Maximum (mg/l)	Minimum (mg/l)
CBOD5	25	25	--	--
NH3-N	3.7	3.7	7.4	--
Dissolved Oxygen	4	--	--	4

The input concentration for CBOD5 is the current average monthly technology-based concentration limitation in the existing permit. The ammonia-N and dissolved oxygen input concentrations of 3.7 and 4 mg/l, respectively, are the current water quality-based concentration limitations in the permit . Based on the model output (attached), the existing limitations are protective of the receiving unnamed tributary to Middle Creek.

Best Professional Judgment (BPJ) Limitations

DEP proposes to retain influent monitoring for BOD5 and TSS to continue to characterize the wastewater.

DEP also proposes to retain UV transmittance monitoring to ensure adequate disinfection is occurring.

An annual reporting requirement for E. Coli is proposed per the 2017 Triennial Review of Water Quality Standards, published in the PA Bulletin on July 11, 2020.

Chesapeake Bay

Pennsylvania's Phase 3 Watershed Implementation Plan ("WIP") Wastewater Supplement (Revised, September 13, 2021) identifies the Kissimmee WWTP as a Phase 5 facility. Phase 5 facilities are required to report total nitrogen ("TN") and total phosphorus ("TP") on an annual basis unless the facility has already completed at least two years of nutrient monitoring. The fact sheet developed for the 2013 renewal summarized two years of TN and TP monitoring: average TN 21.8 mg/l and TP 2.2 mg/l.

Since the facility has already completed the WIP's nutrient monitoring requirements, DEP does not propose to establish requirements for TN or TP.

Anti-Backsliding

In accordance with 40 CFR 122.44(l)(1) and (2), this permit does not propose any effluent limitations, standards, or conditions that are less stringent than the previous permit.

Existing Effluent Limitations and Monitoring Requirements

The existing limitations and monitoring requirements are as follows:

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Average Monthly	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Metered
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	4.0 Inst Min	Report	XXX	XXX	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	4.2	6.7	25.0	40.0 Wkly Avg	XXX	50.0	2/month	Grab
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/month	Grab
Total Suspended Solids	5.0	7.5	30.0	45.0 Wkly Avg	XXX	60.0	2/month	Grab
Total Suspended Solids Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	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
Ultraviolet light transmittance (%)	XXX	XXX	Report Inst Min	XXX	XXX	XXX	1/day	Grab
Ammonia-Nitrogen Nov 1 - Apr 30	1.8	2.8	11.0	17.0 Wkly Avg	XXX	22.0	2/month	Grab
Ammonia-Nitrogen May 1 - Oct 31	0.62	0.93	3.7	5.6 Wkly Avg	XXX	7.4	2/month	Grab

Compliance Sampling Location: Outfall 001

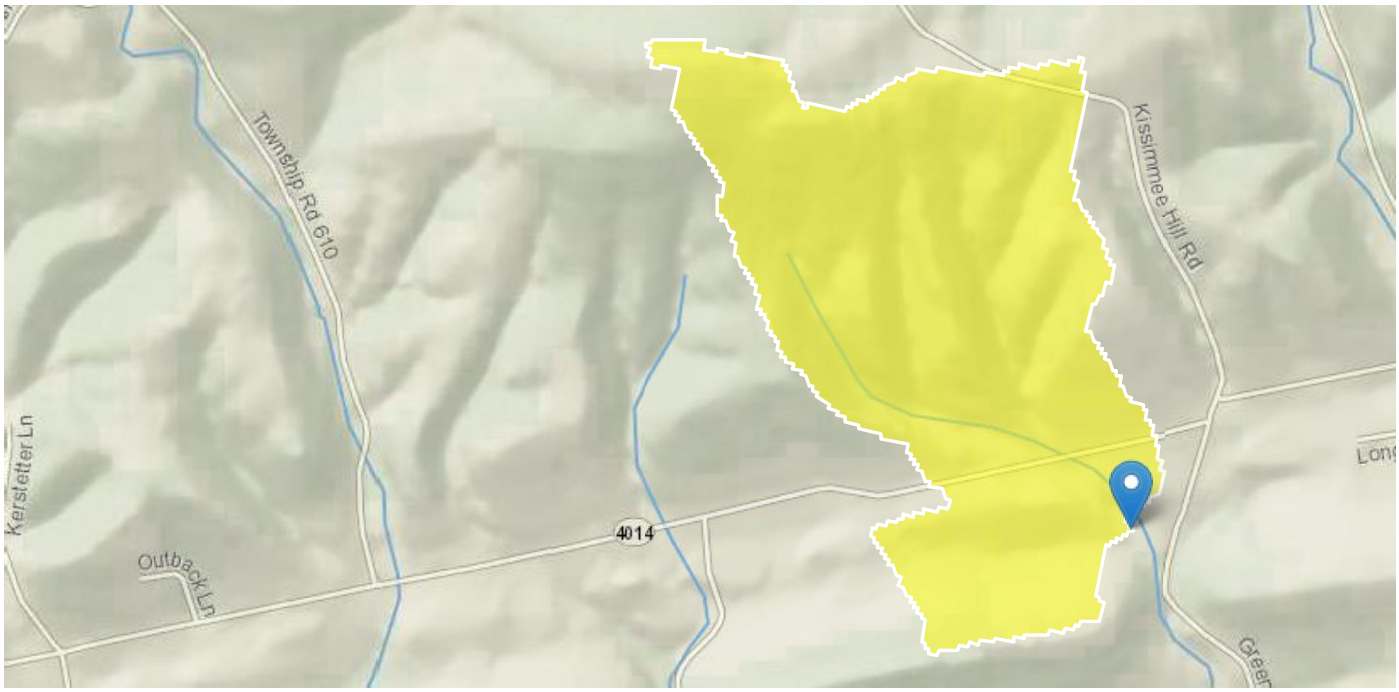
Proposed Effluent Limitations and Monitoring Requirements

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)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Instantaneous Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Metered
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	4.0	Report	XXX	XXX	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	4.2	6.7	XXX	25.0	40.0	50	2/month	Grab
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/month	Grab
Total Suspended Solids	5.0	7.5	XXX	30.0	45.0	60	2/month	Grab
Total Suspended Solids Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	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	XXX	XXX	Report	1/year	Grab
Ultraviolet light transmittance (%)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Grab
Ammonia-Nitrogen Nov 1 - Apr 30	1.8	2.8	XXX	11.0	17.0	22	2/month	Grab
Ammonia-Nitrogen May 1 - Oct 31	0.62	0.93	XXX	3.7	5.6	7.4	2/month	Grab

Compliance Sampling Location: Outfall 001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USGS
science for a changing world

Prepared in cooperation with the Pennsylvania Department of Environmental Protection

Selected Streamflow Statistics for Streamgage Locations in and near Pennsylvania

Open-File Report 2011-1070

U.S. Department of the Interior
U.S. Geological Survey

Table 1. List of U.S. Geological Survey streamgage locations in and near Pennsylvania with updated streamflow statistics.—Continued

[Latitude and Longitude in decimal degrees; mi^2, square miles]

Streamgage number	Streamgage name	Latitude	Longitude	Drainage area (mi^2)	Regulated[1]
01541303	West Branch Susquehanna River at Hyde, Pa.	41.005	-78.457	474	Y
01541308	Bradley Run near Ashville, Pa.	40.509	-78.584	6.77	N
01541500	Clearfield Creek at Dimeling, Pa.	40.972	-78.406	371	Y
01542000	Moshannon Creek at Osceola Mills, Pa.	40.850	-78.268	68.8	N
01542500	WB Susquehanna River at Karthaus, Pa.	41.118	-78.109	1,462	Y
01542810	Waldy Run near Emporium, Pa.	41.579	-78.293	5.24	N
01543000	Driftwood Branch Sinnemahoning Creek at Sterling Run, Pa.	41.413	-78.197	272	N
01543500	Sinnemahoning Creek at Sinnemahoning, Pa.	41.317	-78.103	685	N
01544000	First Fork Sinnemahoning Creek near Sinnemahoning, Pa.	41.402	-78.024	245	Y
01544500	Kettle Creek at Cross Fork, Pa.	41.476	-77.826	136	N
01545000	Kettle Creek near Westport, Pa.	41.320	-77.874	233	Y
01545500	West Branch Susquehanna River at Renovo, Pa.	41.325	-77.751	2,975	Y
01545600	Young Womans Creek near Renovo, Pa.	41.390	-77.691	46.2	N
01546000	North Bald Eagle Creek at Milesburg, Pa.	40.942	-77.794	119	N
01546400	Spring Creek at Houserville, Pa.	40.834	-77.828	58.5	N
01546500	Spring Creek near Axemann, Pa.	40.890	-77.794	87.2	N
01547100	Spring Creek at Milesburg, Pa.	40.932	-77.786	142	N
01547200	Bald Eagle Creek below Spring Creek at Milesburg, Pa.	40.943	-77.786	265	N
01547500	Bald Eagle Creek at Blanchard, Pa.	41.052	-77.604	339	Y
01547700	Marsh Creek at Blanchard, Pa.	41.060	-77.606	44.1	N
01547800	South Fork Beech Creek near Snow Shoe, Pa.	41.024	-77.904	12.2	N
01547950	Beech Creek at Monument, Pa.	41.112	-77.702	152	N
01548005	Bald Eagle Creek near Beech Creek Station, Pa.	41.081	-77.549	562	Y
01548500	Pine Creek at Cedar Run, Pa.	41.522	-77.447	604	N
01549000	Pine Creek near Waterville, Pa.	41.313	-77.379	750	N
01549500	Blockhouse Creek near English Center, Pa.	41.474	-77.231	37.7	N
01549700	Pine Creek below Little Pine Creek near Waterville, Pa.	41.274	-77.324	944	Y
01550000	Lycoming Creek near Trout Run, Pa.	41.418	-77.033	173	N
01551500	WB Susquehanna River at Williamsport, Pa.	41.236	-76.997	5,682	Y
01552000	Loyalsock Creek at Loyalsockville, Pa.	41.325	-76.912	435	N
01552500	Muncy Creek near Sonestown, Pa.	41.357	-76.535	23.8	N
01553130	Sand Spring Run near White Deer, Pa.	41.059	-77.077	4.93	N
01553500	West Branch Susquehanna River at Lewisburg, Pa.	40.968	-76.876	6,847	Y
01553700	Chillisquaque Creek at Washingtonville, Pa.	41.062	-76.680	51.3	N
01554000	Susquehanna River at Sunbury, Pa.	40.835	-76.827	18,300	Y
01554500	Shamokin Creek near Shamokin, Pa.	40.810	-76.584	54.2	N
01555000	Penns Creek at Penns Creek, Pa.	40.867	-77.048	301	N
01555500	East Mahantango Creek near Dalmatia, Pa.	40.611	-76.912	162	N
01556000	Frankstown Branch Juniata River at Williamsburg, Pa.	40.463	-78.200	291	N
01557500	Bald Eagle Creek at Tyrone, Pa.	40.684	-78.234	44.1	N
01558000	Little Juniata River at Spruce Creek, Pa.	40.613	-78.141	220	N
01559000	Juniata River at Huntingdon, Pa.	40.485	-78.019	816	LF
01559500	Standing Stone Creek near Huntingdon, Pa.	40.524	-77.971	128	N
01559700	Sulphur Springs Creek near Manns Choice, Pa.	39.978	-78.619	5.28	N
01560000	Dunning Creek at Belden, Pa.	40.072	-78.493	172	N

Table 2. Selected low-flow statistics for streamgage locations in and near Pennsylvania.—Continued

[ft³/s; cubic feet per second; —, statistic not computed; <, less than]

Streamgage number	Period of record used in analysis[1]	Number of years used in analysis	1-day, 10-year (ft³/s)	7-day, 10-year (ft³/s)	7-day, 2-year (ft³/s)	30-day, 10-year (ft³/s)	30-day, 2-year (ft³/s)	90-day, 10-year (ft³/s)
01546000	1912–1934	17	1.8	2.2	6.8	3.7	12.1	11.2
01546400	1986–2008	23	13.5	14.0	19.6	15.4	22.3	18.7
01546500	1942–2008	67	26.8	29.0	41.3	31.2	44.2	33.7
01547100	1969–2008	40	102	105	128	111	133	117
01547200	1957–2008	52	99.4	101	132	106	142	115
01547500	[2]1971–2008	38	28.2	109	151	131	172	153
01547500	[3]1956–1969	14	90.0	94.9	123	98.1	131	105
01547700	1957–2008	52	.5	.6	2.7	1.1	3.9	2.2
01547800	1971–1981	11	1.6	1.8	2.4	2.1	2.9	3.5
01547950	1970–2008	39	12.1	13.6	28.2	17.3	36.4	23.8
01548005	[2]1971–2000	25	142	151	206	178	241	223
01548005	[3]1912–1969	58	105	114	147	125	165	140
01548500	1920–2008	89	21.2	24.2	50.1	33.6	68.6	49.3
01549000	1910–1920	11	26.0	32.9	78.0	46.4	106	89.8
01549500	1942–2008	67	.6	.8	2.5	1.4	3.9	2.6
01549700	1959–2008	50	33.3	37.2	83.8	51.2	117	78.4
01550000	1915–2008	94	6.6	7.6	16.8	11.2	24.6	18.6
01551500	[2]1963–2008	46	520	578	1,020	678	1,330	919
01551500	[3]1901–1961	61	400	439	742	523	943	752
01552000	1927–2008	80	20.5	22.2	49.5	29.2	69.8	49.6
01552500	1942–2008	67	.9	1.2	3.1	1.7	4.4	3.3
01553130	1969–1981	13	1.0	1.1	1.5	1.3	1.8	1.7
01553500	[2]1968–2008	41	760	838	1,440	1,000	1,850	1,470
01553500	[3]1941–1966	26	562	619	880	690	1,090	881
01553700	1981–2008	28	9.1	10.9	15.0	12.6	17.1	15.2
01554000	[2]1981–2008	28	1,830	1,990	3,270	2,320	4,210	3,160
01554000	[3]1939–1979	41	1,560	1,630	2,870	1,880	3,620	2,570
01554500	1941–1993	53	16.2	22.0	31.2	25.9	35.7	31.4
01555000	1931–2008	78	33.5	37.6	58.8	43.4	69.6	54.6
01555500	1931–2008	78	4.9	6.5	18.0	9.4	24.3	16.6
01556000	1918–2008	91	43.3	47.8	66.0	55.1	75.0	63.7
01557500	1946–2008	63	2.8	3.2	6.3	4.2	8.1	5.8
01558000	1940–2008	69	56.3	59.0	79.8	65.7	86.2	73.7
01559000	1943–2008	66	104	177	249	198	279	227
01559500	1931–1958	28	9.3	10.5	15.0	12.4	17.8	15.8
01559700	1963–1978	16	.1	.1	.2	.1	.3	.2
01560000	1941–2008	68	8.5	9.4	15.6	12.0	20.2	16.2
01561000	1932–1958	27	.4	.5	1.6	.8	2.5	1.7
01562000	1913–2008	96	64.1	67.1	106	77.4	122	94.5
01562500	1931–1957	27	1.1	1.6	3.8	2.3	5.4	3.7
01563200	[2]1974–2008	35	—	—	—	112	266	129
01563200	[3]1948–1972	25	10.3	28.2	86.1	64.5	113	95.5
01563500	[2]1974–2008	35	384	415	519	441	580	493
01563500	[3]1939–1972	34	153	242	343	278	399	333
01564500	1940–2008	69	3.6	4.2	10.0	6.2	14.4	10.6

Low-Flow (Q_{7-10}) Calculation

Facility: **Kissimmee Wastewater Treatment Plant**
NPDES Permit No. **PA0228079**

Gage Information

Drainage Area: **301** mi^2
Q_{7-10}: **37.6** cfs
LFY: **0.125** cfsm

Outfall Information

Drainage Area: **0.3** mi^2
Q_{7-10}: **0.04** cfs

Downstream Locations

RMI: **0**
Drainage Area: **0.44** mi^2
Q_{7-10}: **0.055** cfs

RMI:
Drainage Area: mi^2
Q_{7-10}: cfs

RMI:
Drainage Area: mi^2
Q_{7-10}: c s

RMI:
Drainage Area: mi^2
Q_{7-10}: cfs

RMI:
Drainage Area: mi^2
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RMI:
Drainage Area: mi^2
Q_{7-10}: cfs

RMI:
Drainage Area: mi^2
Q_{7-10}: c s

RMI:
Drainage Area: mi^2
Q_{7-10}: cfs

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
06A	17827	Trib 17827 to Middle Creek	**0.130**	600.00	0.30	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 (ºC)	Tributary pH	Stream Temp (ºC)	Stream pH
Q7-10	0.125	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (ºC)	Disc pH
Kissimmee WWTP	PA0228079	0.0200	0.0200	0.0200	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	3.70	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
06A	17827	Trib 17827 to Middle Creek	**0.000**	579.00	0.44	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 (ºC)	Tributary pH	Stream Temp (ºC)	Stream pH
Q7-10	0.125	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (ºC)	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
06A	17827	Trib 17827 to Middle 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 (ºC)	Analysis pH
Q7-10 Flow												
0.130	0.04	0.00	0.04	.0309	0.03059	.34	2.84	8.35	0.07	0.112	22.26	7.00
Q1-10 Flow												
0.130	0.02	0.00	0.02	.0309	0.03059	NA	NA	NA	0.06	0.127	22.82	7.00
Q30-10 Flow												
0.130	0.05	0.00	0.05	.0309	0.03059	NA	NA	NA	0.08	0.101	21.89	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	5		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
06A	17827	Trib 17827 to Middle 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
0.130	Kissimmee WWT	13.27	7.4	13.27	7.4	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
0.130	Kissimmee WWT	1.67	3.7	1.67	3.7	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)		
0.13	Kissimmee WWTP	25	25	3.7	3.7	4	4	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
06A	17827	Trib 17827 to Middle Creek

RMI	Total Discharge Flow (mgd)	Analysis Temperature (ºC)	Analysis pH
0.130	0.020	22.260	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
2.839	0.340	8.347	0.071
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
12.40	1.356	1.67	0.833
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
6.325	28.582	Owens	5
Reach Travel Time (days)			
0.112			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.011	12.19	1.66	6.67
0.022	11.99	1.64	6.93
0.034	11.79	1.63	7.12
0.045	11.59	1.61	7.27
0.056	11.40	1.60	7.38
0.067	11.21	1.58	7.46
0.078	11.02	1.57	7.53
0.090	10.83	1.55	7.58
0.101	10.65	1.54	7.62
0.112	10.47	1.52	7.66

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
06A	17827	Trib 17827 to Middle 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)
0.130	Kissimmee WWTP	PA0228079	0.020	CBOD5	25		
				NH3-N	3.7	7.4	
				Dissolved Oxygen			4