pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northeast Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0061328**
Facility Type	**Municipal**	APS ID	**732748**
Major / Minor	**Minor**	Authorization ID	**1194721**

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Plum Creek Municipal Authority (PCMA)**	Facility Name	**Plum Creek Municipal Authority STP**
Applicant Address	686 Berne Drive Auburn, PA 17922-9092	Facility Address	686 Berne Drive Auburn, PA 17922-9092
Applicant Contact	Kenneth Nagle	Facility Contact	Jeffrey Crawford
Applicant Phone	(570) 754-7222	Facility Phone	(570) 754-7505
Client ID	64402	Site ID	4473
Ch 94 Load Status	Not Overloaded	Municipality	South Manheim Township
Connection Status	No Limitations	County	Schuylkill
Date Application Received	July 31, 2017	EPA Waived?	Yes
Date Application Accepted	July 31, 2017 (complete as submitted), processed 8/21.	If No, Reason	-

Purpose of Application: Renewal of a NPDES permit for a minor Sewage Treatment Plant.

Summary of Review

This is an NPDES Permit Renewal for a **0.0325 MGD Municipal Sewage Treatment Plant discharging to Plum Creek (CWF; Stream Code# 2316; pathogen impairment of unknown source**) which serves the Lake Wynonah development.

- The facility had annual average daily flows of 0.007 MGD (2014), 0.011 MGD (2015), 0.007 (2016), 0.00763 (2017) and 0.006 (2018). The 2018 Chapter 94 Report indicates past monthly average flows have reached 0.019 MGD (2015), 0.011 MGD (2016), 0.010 MGD (2017) and 0.008 (2018).
- The STP receives hauled-in wastewater from a development at Lake Wynonah. Lake Wynonah has no sewer system (all homes have individual on-lot systems per 2018 Chapter 94 Report, either holding tanks or septic systems). Lake Wynonah is the only identified municipality source identified in the NPDES Permit Application. The 2018 Chapter 94 Report indicated 155 holding tanks and 1066 onsite septic absorption field systems in the service area.
- The Authority has a 3/15/2017 DRBC Groundwater Withdrawal Docket No. D-1991-020 CP-4. The STP has a 1972 DRBC Docket No. D-72-100 CP, but no updated Docket found on DRBC website or available DEP files.

Special Part C Conditions:

- Parts C.I.A – C.I.C: Stormwater prohibition; necessary property rights; residuals management
- **Part C.I.D: New chlorine minimization condition**
- **Part C.II: New schedule of compliance (new Ammonia-N and revised TRC limits)**
- **Part C.III: New standard solids management conditions**

Public Participation

Approve	Deny	Signatures	Date
X		James D. Berger, P.E. / Environmental Engineer	August 6, 2019
X		Amy M. Bellanca, P.E. / Environmental Engineer Manager	

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

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.0325
Latitude	40º 35' 51.50"	Longitude	-76º 9' 23.14"
Quad Name	Friedensburg	Quad Code	1436 (6.19.3)
Wastewater Description:	Sewage Effluent		
Receiving Waters	Plum Creek	Stream Code	2316
NHD Com ID	25974602	RMI	~2.35 miles
Drainage Area	3.49 square miles	Yield (cfs/mi^2)	0.0691
Q_{7-10} Flow (cfs)	0.24 CFS	Q_{7-10} Basis	USGS PAStreamstats LFY from point above Stairway Lake.
Elevation (ft)	~540 Feet	Slope (ft/ft)	-
Watershed No.	3-A	Chapter 93 Class.	CWF
Existing Use	-	Existing Use Qualifier	-
Exceptions to Use	-	Exceptions to Criteria	-
Assessment Status	Attaining Use(s) except for recreational use		
Cause(s) of Impairment	**Pathogens**		
Source(s) of Impairment	**Unknown**		
TMDL Status	Final	Name	Upper Schuylkill River TMDL (AMD metals)

Background/Ambient Data: None available		Data Source: None available
pH (SU)	-	-
Temperature (°F)	-	-
Hardness (mg/L)	-	-
Other:	-	-

Nearest Downstream Public Water Supply Intake	PA AMER GLEN ALSACE EXETER WATER SYS (ID# 101174), Robeson Township, Berks County		
PWS Waters	Schuylkill River	Flow at Intake (cfs)	-
PWS RMI	-	Distance from Outfall (mi)	>10 miles

Changes Since Last Permit Issuance: **Pathogen Impairment (source unknown). Downstream sampling point (on Plum Creek) had elevated fecals of human origin per 2017-2017 sampling results at Monitor Point No. 148415 ("SCHU_23"). NOTE: Upstream Lake Wynonah development has 1066 onsite septic absorption field systems per the Chapter 94 Report.**

Other Comments:

- Lake Wynonah (with Fawn Lake with Dam No. 54-175 (B-1 High Hazard) upstream) has the Lake Wynonah Dam No. 54-176 which is a Class B-1 High Hazard dam, directly upstream of the Outfall.
- **Plum Creek discharges to the "Stairway Lake" (impaired but TMDLs completed) on the Schuylkill River (Stream Code# 833; Impaired by pathogens, PCBs, AMD siltation/metals; CWF**) about 2.35 miles downstream.
- **Facility has not been monitoring ammonia-N effluent concentrations in prior NPDES Permit.**
- Downstream Plum Creek monitoring point (2019 sampling, sample point No. 2271597, downstream of fecal monitoring point) did not have high AMD metals (54.9 ug/l aluminum; 151 ug/l Total Iron; 29 ug/l manganese).

Treatment Facility Summary

Treatment Facility Name: Plum Creek Municipal Authority STP

WQM Permit No.	Issuance Date	Scope
5472403	11/16/1972	STP (including dumping station, holding tanks, and extended aeration treatment units to service 200 seasonal homes and 100 permanent homes, each with individual holding tanks) with original WQM Special Condition Ammonia-N limits. Original 11/8/1972 DRBC Docket D-72-100 CP facility description included screening device, aeration tank, two final settling tanks, a sludge holding tank, and a "micro strainer" (a rotary water filter).
5472403-T1	6/1/2011	Permit transfer from Lake Wynonah Municipal Authority to Plum Creek Municipal Authority.

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary with the microstrainer allowing for tertiary solids removal.	Extended Aeration	Sodium hypochlorite	0.0325

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.0325	165*	Not Overloaded	None	Disposal

*NPDES Application indicated loading was based on an estimated 609 mg/l BOD5 loading.

Changes Since Last Permit Issuance: None known

Other Comments:

Chapter 94 Report Facility Description: Wastewater is hauled-in only, going to dump station at STP. Influent goes through two successive bar screens before entering two (2) 24,000-gallon holding tanks (with air diffusors), then two successive aeration tanks (coarse bubble aeration), clarifiers, then two (2) parallel clarifers, then one (1) "Microscreen Drum filter" (rotary drum filter), then into chlorine contact/detention for treatment by sodium hypochlorite solution disinfection prior to discharge. One sludge holding tank per DRBC description and Inspection Report. A previous site STP was abandoned "more than 25 years ago".

Minimum Monthly Average: Using the Application influent and effluent concentration information:

Constituent	Influent average (24 samples)	Effluent average (24 samples)	Average Percent Reduction
BOD5	449 mg/l	3.45 mg/l CBOD5 (~4.14 mg/l BOD5 at standard 1:1.2 effluent conversion factor)	99%
TSS	137 mg/l	8.72 mg/l	93.6%

2018 Chapter 94 Report Information (Plum Creek Municipal Authority serving the Lake Wynonah Development, in South Manheim Township, Schuylkill County, NPDES No. PA0061328):

- **Unusual Permitting/Planning Situation**: **Due to pathogen impairment (bacteria of human origin) of receiving stream, it is unclear whether the Authority's 2018 Chapter 94 statements reflect approved Act 537 Planning (due to potential for failing septic systems to cause/contribute to impairment).**
    - "There is no sewer system; all wastewater in the Lake Wynonah development is hauled from holding tanks or septic tanks to the wastewater treatment plant by pump trucks which are owned by Plum Creek Municipal Authority (PCMA)".
    - Original 1972 WQM permitting assumed a service area with **200 seasonal homes and 100 permanent homes** sending wastes to a strictly "hauled-in" STP, but the Chapter 94 Report indicates **155 holding tanks and 1,066 onsite septic/absorption field systems (i.e. 1066 residences not generally directing any flow to the STP)**.
    - **The 2018 Chapter 94 Report stated:**
        - The STP organic loading was based on a total population equivalent to 970, and a per capita organic load of 0.17 pounds of BOD5 per day. Average organic loading for the past five years has been 37.6 pounds per day.
        - "**The rate at which holding tanks are replaced by septic systems is expected to average 1 per year thus reducing the loading from this source. This reduction is expected to be offset by increases in septic systems due to new construction."**

  NOTE: Original 10/7/1972 WQM Permit IRR indicated Planning Evaluation Report was approved 6/19/1972, with IRR noting 100 permanent homes/200 seasonal homes with holding tanks. The 11/8/1972 DRBC Docket No. 1972 DRBC Docket No. D-72-100 CP stated: "The proposed treatment plant will serve the Lake Wynonah development until such time building concentration warrants the installation of a conventional sewage collection system and treatment plant. At that time, the treatment plant will remain in operation only to serve rural areas of South Manheim and surrounding Townships."
- **Projected Hydraulic Overloading (based on EDU calculations, not reported influent flows to STP):**
    - **Actual flows are only a fraction of the permitted STP capacity (see EDMR).** No CAP proposed because PCMA does not feel overload conditions exist, but they noted the plant could be operated in a contact stabilization mode to increase capacity if needed.
    - The Report included 1,066 Lake Wynonah residences (see above) with onsite septic systems in projecting hydraulic overloading. Overloading would occur if all of the onsite septic systems were connected to this STP.
- **Existing/Projected Organic Overloading: May 2018 was a month of organic overloading (266 lbs BOD5/day received, 4550 mg/l BOD5 influent on single day of influent sampling that month). 2014 had two months of overloading (August and October). Projected organic overloading for next five (5) years based on EDUs (not actual STP loadings received from hauled-in wastes).** No CAP proposed because PCMA does not feel overload conditions exist, but they noted the plant could be operated in a contact stabilization mode to increase capacity if needed (via permit amendment). Overloading was not mentioned in Noncompliance form.
- **Sludge**: Sludge is disposed at the Pine Grove WWTP. Facility only had 42% of its expected waste volume and only 8% of expected volume was wasted per the Solids Management (Sludge Calculator). They generated 3,400 dry pounds of sludge in 2018. The sludge volumes range from 8,000 gallons/month in summer to 4,000 gallons every two months in winter.
- **NPDES Permit Part B.I.C.4 Requirements**:
    - **Chapter 94.12 requirements might be triggered by May 2018 organic overloading and projected future overloading.**
    - Facility has apparently not been using hauled-in waste supplemental forms for the hauled-in wastewater (using other DMR supplemental forms to reflect hauled in Lake Wynonah holding tank sewage). No total volume estimate (broken down by source) provided. New NPDES Permit will have to clarify correct method of reporting influent flows for the public record.

Compliance History

DMR Data for Outfall 001 (from June 1, 2018 to May 31, 2019)

Parameter	MAY-19	APR-19	MAR-19	FEB-19	JAN-19	DEC-18	NOV-18	OCT-18	SEP-18	AUG-18	JUL-18	JUN-18
Flow (MGD) Average Monthly	0.00569	0.00544	0.00441	0.00363	0.00536	0.00517	0.00501	0.00505	0.00477	0.00748	0.00722	0.00704
Flow (MGD) Daily Maximum	0.01657	0.01426	0.01356	0.01211	0.01364	0.01518	0.0126	0.0098	0.01262	0.01285	0.01284	0.01098
pH (S.U.) Minimum	6.71	6.49	6.71	6.35	6.54	6.62	6.65	6.87	6.83	6.7	6.65	6.55
pH (S.U.) Maximum	7.31	7.17	7.25	7.2	7.49	7.4	7.56	7.85	7.7	7.59	7.55	7.39
TRC (mg/L) Average Monthly	0.96	0.83	0.71	0.79	0.78	0.74	0.71	0.68	0.72	0.67	0.74	0.64
TRC (mg/L) Instantaneous Maximum	1.59	1.86	1.75	1.45	1.17	0.97	1.17	1.16	2.07	1.18	1.26	1.19
CBOD5 (mg/L) Average Monthly	4.5	5.2	14.7	4.3	3.9	3.1	2.2	7.4	7.9	2	2.7	3
TSS (mg/L) Average Monthly	6	30.4	14.5	12.8	14.4	21.5	12.5	10	< 4	7	4	5.2
Fecal Coliform (CFU/100 ml) Geometric Mean	< 1	723	< 1	< 1	< 1	1	< 1	< 1	11	< 1	< 1	< 1
Fecal Coliform (CFU/100 ml) Instantaneous Maximum	< 1	723	< 1	< 1	< 1	1	< 1	< 1	11	< 1	< 1	< 1

DMR Data for Outfall 001 (from July 1, 2016 to June 30, 2017)

Parameter	JUN-17	MAY-17	APR-17	MAR-17	FEB-17	JAN-17	DEC-16	NOV-16	OCT-16	SEP-16	AUG-16	JUL-16
Flow (MGD) Average Monthly	0.00914	0.00767	0.00848	0.00618	0.00759	0.00641	0.00830 6	0.00640 8	0.00703	0.00815	0.00853	0.009
Flow (MGD) Daily Maximum	0.01447	0.01912	0.01945	0.01433	0.01494	0.01447	0.01700 1	0.01865	0.01214	0.013	0.01428	0.0174
pH (S.U.) Minimum	7.31	7.14	6.7	6.43	6.79	6.6	6.53	6.6	6.53	6.44	6.4	6.46

pH (S.U.) Maximum	7.68	7.62	7.61	7.64	7.78	7.68	7.45	7.74	7.37	7.4	7.39	7.26
TRC (mg/L) Average Monthly	0.89	0.9	0.63	0.68	0.68	0.73	0.9	< 0.58	0.56	0.59	0.46	0.37
TRC (mg/L) Instantaneous Maximum	1.82	1.68	1.66	1.68	1.73	1.72	1.85	1.62	1.34	1.56	1.61	1.22
CBOD5 (mg/L) Average Monthly	2.3	9.5	2.5	4.2	< 2	< 2	4.3	< 2	3.3	< 2	2.5	< 2
TSS (mg/L) Average Monthly	< 4	< 4	11.5	5.2	< 4	6	12	< 4	10.4	< 4.6	< 4	5.2
Fecal Coliform (CFU/100 ml) Geometric Mean	< 1	7	< 1	< 1	< 1	< 1	< 65	< 1	< 1	< 5	21	< 1
Fecal Coliform (CFU/100 ml) Instantaneous Maximum	< 1	7	< 1	< 1	< 1	< 1	4200	< 1	< 1	29	21	< 1

Compliance History

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

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
TSS	04/30/19	Avg Mo	30.4	mg/L	30	mg/L

Summary of Inspections:

FACILITY NAME	INSP ID	INSPECTED DATE	INSP TYPE	INSPECTION RESULT DESC	INSPECTOR ID	INSPECTOR	# OF VIOLATIONS
PLUM CREEK MUN AUTH	2799051	09/19/2018	Compliance Evaluation	No Violations Noted	00531359	SABITSKY, JARED	0
PLUM CREEK MUN AUTH	2538374	11/02/2016	Compliance Evaluation	No Violations Noted	00531359	SABITSKY, JARED	0
PLUM CREEK MUN AUTH	2425185	11/02/2015	Routine/Partial Inspection	No Violations Noted	00531359	SABITSKY, JARED	0
PLUM CREEK MUN AUTH	2348624	02/09/2015	Routine/Partial/Aerial Inspection	No Violations Noted	00531359	SABITSKY, JARED	0
PLUM CREEK MUN AUTH	2322966	10/20/2014	Compliance Evaluation	No Violations Noted	00531359	SABITSKY, JARED	0
PLUM CREEK MUN AUTH	2316280	04/09/2014	Follow-up Inspection	No Violations Noted	00613405	CONFER, SCOTT	0
PLUM CREEK MUN AUTH	2316272	04/03/2014	Compliance Evaluation	Violation(s) Noted	00613405	CONFER, SCOTT	1

Other Comments: Renewal application was timely, and permit administratively extended.

- Receiving stream (Plum Creek) is pathogen-impaired, including pathogens of human origins. Potential sources include: Wildcat sewers, failing septic systems, and inadequate disinfection.
- May 2018 Organic Overload event per 2018 Chapter 94 Report.
- Facility has apparently not been using hauled-in waste supplemental forms for the hauled-in wastewater (using other DMR supplemental forms to reflect hauled in Lake Wynonah holding tank sewage). Nothing in old permit or available file found to exempt them from this requirement. No total volume estimate (broken down by source) provided.

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .0325
Latitude 40º 35' 52.00" **Longitude** -76º 9' 24.00"
Wastewater Description: Sewage Effluent

Permit Limits and Monitoring: Changes bolded

Parameter	Limit (mg/l unless otherwise specified)	SBC	Model/Basis
CBOD5	**Report Lbs/d** 25.0 **Report** 50.0	**Monthly Average** Monthly Average **Daily Max** IMAX	Existing Technology limit (Chapter 92a.47) supported by water quality modeling. **Due to 2/month monitoring frequency, no need to add weekly limits.** Application data was max of 14 mg/l and average of 3.45 mg/l (24 samples).
TSS	**Report Lbs/d** 30.0 **Report** 60.0	**Monthly Average** Monthly Average **Daily Max** IMAX	Existing Technology limit (Chapter 92a.47). **Due to 2/month monitoring frequency, no need to add weekly limits.** Application data was max of 22 mg/l and average of 8.72 mg/l (24 samples)
pH	6.0 – 9.0 SU	**Inst.** Min - IMAX	Existing Technology limit (Chapter 92a.47). Application data range was 6.0 – 7.78 SU.
Dissolved Oxygen (DO)	**3.0**	**Inst. Minimum**	**New permit limit based on water quality modeling and normal treated sewage DO concentration. No application data. No previous monitoring requirement.**
Fecal Coliform (5/1 – 9/30)	200/100 ml 1,000/100 ml	Geo Mean IMAX	Existing Technology limit (Chapter 92a.47). Max of 65 CFU/100 ml and average of 5.9 CFU/100 mil
Fecal Coliform (10/1 – 4/30)	2,000/100 ml 10,000 ml/100 ml	Geo Mean IMAX	See above.
Total Residual Chlorine	**0.70** **2.31**	**Monthly Average** **IMAX**	**Revised TRC limit due to water quality modeling. Old limits (1.20 mg/l monthly average; 2.80 mg/l IMAX) were based on old Regional BAT limits. New limits effective in three years. Application data indicated 1.90 mg/l max and average of 1.14 mg/l (24 samples).**
Ammonia-Nitrogen (May 1 - Oct 31)	**Report Lbs/d** **13.75** **Report** **27.50**	**Monthly Average** **Monthly Average** **Daily Max** **IMAX**	**New limit based on water quality modeling effective in three years with interim monitoring. Not monitored in previous NPDES Permit term. One sample at 10.6 mg/l (no previous monitoring requirement)**
Ammonia-Nitrogen (Nov 1 - Apr 30)	**Report Lbs/d** **Report** **Report**	**Monthly Average** **Monthly Average** **Daily Max**	**See above.**
Total Phosphorus	**Report Lbs/d** **Report** **Report**	**Annual Average** **Annual Average** **Daily Max**	**Annual nutrient monitoring (Chapter 92a.61). Single 6.23 mg/l sample.**
Total Nitrogen (Nitrate-Nitrite-N + TKN measured in same	**Report Lbs/d** **Report** **Report**	**Annual Average** **Annual Average** **Daily Max**	**See above. Single 12.5 mg/l sample.**

sample)			
TMDL metals (Aluminum, Manganese, Total Iron)	**Report Lbs/d Report Report**	**Annual Average Annual Average Daily Max**	**Annual monitoring to allow for updating TMDL (Chapter 92a.61). No application data.**
BOD5 and TSS Influent (Internal Monitor Point No. 101)	**Report Lbs/d Report Report**	**Monthly Average Monthly Average Daily Max**	**New reporting requirement due to POTW regulatory requirements and existing/projected organic and projected hydraulic overloading. Application Influent BOD5 concentrations ranged from 133 mg/l to 1180 mg/l, with average of 449 mg/l (24 samples). Application Influent TSS concentrations ranged from 92.5 mg/l to 14,600 mg/l, with average of 1,711 mg/l (24 samples).**
BOD5 and TSS Minimum Monthly Average reduction	**85%**	**Monthly Average**	**POTW and existing NPDES Permit requirements now with reporting requirements. See Treatment Section calculations.**
Total Dissolved Solids (TDS)	**Report Lbs/d Report Report**	**Annual Average Annual Average Daily Max**	**Annual monitoring required (Chapter 92a.61)**

Comments:

- **New Ammonia-N limit, new DO limits, and revised TRC limits this renewal.**
- **Due to pathogen-impacted stream, fecal coliform monitoring has been increased to 1/week. Other monitoring requirements have been updated to standard minimum frequencies and reporting of mass loadings and daily maximums (no additional sampling required). Significant digits have been added to old permit limits.**
- **Due to reported/projected organic overloading, flow-proportional 24-hour composite sampling will be required to eliminate biasing.**
- **Influent monitoring point (No. 101) added to allow for influent BOD5/TSS monitoring and reporting, plus calculation of minimum monthly average reductions.**

Communication Log:

8/21/2017: Called up Mr. Jeff Crawford (contractor who is also the client contact) for several minor clarifications on 8/21/2017 on several Completeness issues due to ambiguous application language.

- General Information Form:
  - The Site Contractor (Jeffery Crawford) has his own client number and used in the application. Need clarification that the Municipal Authority is the operator with financial control. **Plum Creek Municipal Authority remains the operator with financial control**.
  - Need Plum Creek Municipal Authority EIN number. **EIN# 23-2386934 per Mr. Crawford (8/21/2017 telephone call back)**
- NPDES Form:
  - Need Part II WQM Permit and issuance date. **WQM ID# 5472403-T1 per Mr. Crawford (8/21/2017 telephone call back)**.
  - Gas chlorine disinfection or other? **Facility has used a liquid sodium hypochlorite system since original construction.**
  - Topo Map: Is the outfall on the lakeside of Berne Drive? **Yes. He vouched for topo map accuracy.**