



Permit-to-Install/Plan Approval Application

Wastewater Treatment Plants Less Than 100,000 GPD

FOR AGENCY USE ONLY

Application Number: _____ Date Received: / /

Applicant: _____

Facility Owner: _____

Application/Plans Prepared by: _____

Project Name: _____

1. Design Basis

Type of Establishment	Type of Units (employees, seats, etc.)	Number of Units	Sewage Flow (gal/day)	Total (gpd)
		x	=	
		x	=	
		x	=	
		x	=	
		x	=	

Total Hydraulic Flow (gpd) = _____

Refer to OAC 3745-42-05 for design flow requirements

2. Influent Loads

a. Average daily design hydraulic flow (ADDF)	_____	gallons/day
b. Design influent BOD ₅ concentration	_____	mg/l
c. Design BOD ₅ loading	_____	pounds BOD ₅ /day
d. Significant Runoff Period (SRP)	_____	hours
e. Peak Factor	_____	
f. Design Peak Hourly Flow	_____	gallons/day
g. Peak Influent Flow Rate	_____	gallons/minute

3. Effluent Concentrations and Loads (30-day avg.)

	Summer		Winter	
	mg/l	lb/day	mg/l	lb/day
a. CBOD ₅	mg/l	lb/day	mg/l	lb/day
b. Suspended Solids	mg/l	lb/day	mg/l	lb/day
c. Ammonia-Nitrogen	mg/l	lb/day	mg/l	lb/day
d. Fecal Coliform	/100 ml		/100 ml	
e. Dissolved Oxygen	mg/l		mg/l	
f. Residual Chlorine	mg/l		mg/l	
g. Others:				

4. Flood Protection	
a. 100-year flood elevation	_____ MSL
b. 25-year flood elevation	_____ MSL
c. Describe measures to protect equipment: _____	

5. Design Period: _____ years

6. Receiving Stream: _____

7. Effluent Discharge Location: _____

8. Effluent Discharge Location	
Latitude: _____	Longitude: _____

9. Flow Equalization		<input type="checkbox"/> N/A
a. Flow equalization basin volume:	_____ gallons	
b. Equalized flow:	_____ gallons/day (should equal ADDF)	
c. Air to be supplied:	_____ cfm (with largest blower out of service)	

10. Influent Pumping Station		<input type="checkbox"/> N/A
a. Number of pumps:	_____ pumps	
b. Type of pumps:	_____	
c. Influent pumping rate (IPR):	_____ gpm (with largest pump out of service)	
<i>(Note: Influent pumping facilities should be able to pump the peak influent flow rate with the largest pump out of service unless a flow equalization basin is installed.)</i>		

11. Pretreatment Device			
a. Trash trap and capacity:	<input type="checkbox"/> Yes, _____ gallons	<input type="checkbox"/> No	
b. Comminutor with bar screen bypass and capacity:	<input type="checkbox"/> Yes, _____ gallons/minute	<input type="checkbox"/> No	
c. Bar screen: _____ (number)	Bar space opening: _____		
d. Other (state type): _____			

12. Aeration Tank Design			
a. Number of aeration tanks:	_____ tanks		
b. Tank arrangement: <input type="checkbox"/> Series <input type="checkbox"/> Parallel		c. Total tank volume supplied:	_____ gallons
d. Tank detention time: _____ hours		e. Amount of air supplied:	_____ cfm (with largest blower out of service)
f. Describe the method of flow division where parallel aeration unit arrangements are planned: _____			

13. Final Settling Tank Design			
a. Number of settling tanks:	_____ tanks	e. Average weir overflow rate:	_____ gpd/lineal foot
b. Detention time: _____ hours		f. Peak weir overflow rate:	_____ gpd/ft ²
c. Average surface settling rate: _____ gpd/ft ²			
d. Peak surface settling rate: _____ gpd/lineal foot			

14. Describe method of scum removal and disposal:

15. Describe method and frequency of sludge removal and method and location of sludge disposal:

16. Upward Flow Fixed Media Clarifiers Design
a. Upward peak flow rate: _____ gpm/ft² b. Weir overflow rate: _____ gpd/lineal foot

17. Sludge Management
a. BOD₅ population equivalent flow (BPEF):
 BOD₅ loading _____ lbs/day/0.167 pounds BOD₅/PE x 100 gallons/PE = _____ gallons
b. Sludge holding tank volume (SV): _____ gallons
c. Amount of air supplied: _____ cfm (with largest blower out of service)
d. Number of sludge drying beds: _____ beds e. Total bed area: _____ ft²

18. Check which of the following modes of advanced treatment for effluent dispersal are to be installed:

<input type="checkbox"/> Surface slow sand filter	<input type="checkbox"/> Lagoons	<input type="checkbox"/> Drip Irrigation Field	<input type="checkbox"/> Subsurface sand filter
<input type="checkbox"/> Leaching tile field	<input type="checkbox"/> Mound system	<input type="checkbox"/> Rapid gravity sand filter	<input type="checkbox"/> Constructed Wetland
<input type="checkbox"/> Other: _____			

19. Tertiary Dosing Device
a. Dosing volume provided: _____ gallons (effective capacity)
b. Size of provided dosing pumps: _____ gallons/minute _____ TDH

20. Surface Slow Sand Filters
a. Number of surface slow sand filters: _____ e. Source of filter sand: _____
b. Total sand filter area provided: _____ ft² f. Effective grain size: _____
c. Loading rate: _____ gpd/ft² g. Uniformity coefficient: _____
d. Wall height above sand beds: _____ ft

21. Rapid Gravity Sand Filter
a. Number of cells or units provided: _____ e. Duration of backwash: _____ min
b. Total filter area provided: _____ ft² f. # of backwash pumps: _____ at _____ gal/min
c. Clear well capacity: _____ gal
d. Rate of backwash: _____ gpm/ft²

22. Subsurface Sand Filter
Total sand filter area provided: _____ ft²

23. Leaching Tile Field
Total lineal length of field: _____ feet Total number of leach lines: _____

24. Mound Systems (Note: All dimensions are to be shown on plans also)

a. Site Limitation: (check one)

<input type="checkbox"/> Impermeable soil layer (soil or bedrock) 3-4 gpd/linear foot	<input type="checkbox"/> Solid bedrock 3-4 gpd/linear foot
<input type="checkbox"/> Seasonal high water table 3-4 gpd/linear foot	<input type="checkbox"/> Semi-permeable soil layer 5-6 gpd/linear foot
<input type="checkbox"/> Fractured compacted till 5-6 gpd/linear foot	<input type="checkbox"/> Creviced/fractured bedrock 8-10 gpd/linear foot
<input type="checkbox"/> Sand and/or gravel 8-10 gpd/linear foot	

b. Daily wastewater load:	gpd	m. Number of laterals:
c. Linear loading rate: (*See a above)	gpd/linear foot	l. Number of observation tubes:
d. Basal loading rate:	gpd/ft ²	
e. Sand fill loading rate:	gpd/ft ²	
f. Mound fill depth:	inches	
g. Mound depths:	inches	
h. Delivery pipe material specification:	diameter (in)	
i. Manifold pipe material specification:	diameter (in)	
j. Lateral pipe material specification:	diameter (in)	
k. Total length of laterals	feet	

25. Drip Irrigation

a. Total lineal length of field: _____ feet	e. Basal Loading Rate: _____ gpd/ft ²
b. Number of zones: _____	f. Linear Loading Rate: _____ gpd/linear foot
c. Total lineal length per zone: _____ feet	g. Soil Permeability Rate: _____ min/in
d. Daily Wastewater Load: _____ gpd	

26. Ponds

a. Pond volume provided: _____ gallons	b. Number of cells: _____
c. Average design flow depth: _____ feet	
d. Pond embankment slope: _____ vertical to _____ horizontal	

27. Disinfection System

Check the type of disinfection system to be employed:

<input type="checkbox"/> Tablet chlorination - Ca(OCl) ₂	<input type="checkbox"/> Liquid chlorination - solutions of either Ca(OCl) ₂ or NaOCl
<input type="checkbox"/> Gas chlorination	<input type="checkbox"/> Ultraviolet
<input type="checkbox"/> Other: _____	

a. Chlorination:

i. Provided chlorine contact tank volume: _____ gallons
ii. Chlorine dosage rate: _____ mg/l (at peak flow)
iii. Contact time at peak flow rate: _____ minutes

b. Ultraviolet (UV) Disinfection

i. Source of UV light: _____	
ii. Check the type of UV reactor to be employed:	
<input type="checkbox"/> Quartz-tube reactor (UV source immersed in wastewater)	<input type="checkbox"/> Teflon-tube reactor (UV source not in direct contact with wastewater)
iii. Number of UV modules: _____	iv. Lamps per module: _____
v. UV transmissivity quality: _____ percent	vi. UV light at a wavelength of 253.7 nm: _____ percent
vii. Minimum design dosage: _____ microwatts/square centimeter/second	
viii. Contact time at peak flow rate: _____ seconds	

c. Please describe the procedures that will be employed to clean and maintain the system:

28. Dechlorination N/A

Check the type of dechlorination system to be employed:

Sodium bisulfite (solution) Sodium meta bisulfite (solution)
 Sulfur dioxide (gas) Other: _____

a. Initial effluent chlorine residual: _____ mg/l
b. Final effluent chlorine residual: _____ mg/l
c. Amount of dechlorination agent utilized: _____ lbs (gas)
d. Amount of dechlorination agent utilized: _____ gpd (solution)
e. Concentration of dechlorination solution: _____ percent
f. Density of dechlorination solution: _____ pounds/gallon
g. Contact time based on PDDF: _____ seconds

29. What type of flow measurement device will be installed (for example flow indicating, recording, totalizing, etc.)?

Describe the location(s): _____

30. What type of effluent sampling equipment will be used?

What other types of monitoring equipment will be used? _____

31. Will a certified operator be employed to run the proposed treatment works?

Yes Full-time Part-time No

32. Submittals:

This application must include the following unless otherwise directed by Ohio EPA:

Four copies of the detail plans including site plans, vicinity map, schematic diagrams, plan views, elevation views and cross-sectional views necessary to evaluate the processes.
 Two copies of complete technical specifications.
 Two copies of the Application including Form A, pertinent B & C form(s), and antidegradation addendum (if applicable)

33. The foregoing data is a true statement of facts pertaining to this proposed wastewater treatment facility (ies).

Date: ____ / ____ / ____ Signed: _____ P.E.
Plans prepared by: _____