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

<table>
<thead>
<tr>
<th>Type of Establishment</th>
<th>Type of Units (employees, seats, etc.)</th>
<th>Number of Units</th>
<th>Sewage Flow (gal/day)</th>
<th>Total (gpd)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\[ \times = \]

\[ \times = \]

\[ \times = \]

\[ \times = \]

\[ \times = \]

\[ \times = \]

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.)

<table>
<thead>
<tr>
<th></th>
<th>Summer</th>
<th>Winter</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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:  
   6. Receiving Stream:  

7. Effluent Discharge Location:  

8. Effluent Discharge Location
   Latitude:  
   Longitude:  

9. Flow Equalization
   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
    a. Number of pumps:  pumps
    b. Type of pumps:  
    c. Influent pumping rate (IPR):  gpm (with largest pump out of service)

   (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.)

11. Pretreatment Device
    a. Trash trap and capacity:  Yes,  gallons  No
    b. Comminutor with bar screen bypass and capacity:  Yes,  gallons/minute  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:  □ Series  □ 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
    b. Detention time:  hours
    c. Average surface settling rate:  gpd/ft²
    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. $\text{BOD}_5$ population equivalent flow (BPEF):
      
      $\text{BOD}_5$ loading ______ lbs/day/0.167 pounds $\text{BOD}_5$/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:

   - Surface slow sand filter
   - Lagoons
   - Drip Irrigation Field
   - Subsurface sand filter
   - Leaching field
   - Mound system
   - Rapid gravity sand filter
   - Constructed Wetland
   - 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)
   - Impermeable soil layer (soil or bedrock) 3-4 gpd/lineal foot
   - Solid bedrock 3-4 gpd/linear foot
   - Seasonal high water table 3-4 gpd/lineal foot
   - Semi-permeable soil layer 5-6 gpd/lineal foot
   - Fractured compacted till 5-6 gpd/lineal foot
   - Creviced/fractured bedrock 8-10 gpd/linear foot
   - Sand and/or gravel 8-10 gpd/linear foot

b. Daily wastewater load: gpd

c. Linear loading rate: (*See a above) gpd/lineal foot

d. Basal loading rate: gpd/ft²

e. Sand fill loading rate: gpd/ft²

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

m. Number of laterals:

l. Number of observation tubes:

25. Drip Irrigation

a. Total lineal length of field: feet

b. Number of zones:

c. Total lineal length per zone: feet

d. Daily Wastewater Load: gpd

e. Basal Loading Rate: gpd/ft²

f. Linear Loading Rate: gpd/lineal foot

g. Soil Permeability Rate: min/in

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:

- Tablet chlorination - Ca(OCl)₂
- Liquid chlorination - solutions of either Ca(OCl)₂ or NaOCl
- Gas chlorination
- Ultraviolet
- 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:
      - Quartz-tube reactor (UV source immersed in wastewater)
      - 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

Check the type of dechlorination system to be employed:

- [ ] Sodium bisulfite (solution)
- [ ] Sodium meta bisulfite (solution)
- [ ] Sulfur dioxide (gas)
- [ ] Other: ________________

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Initial effluent chlorine residual:</td>
<td>__________ mg/l</td>
</tr>
<tr>
<td>b. Final effluent chlorine residual:</td>
<td>__________ mg/l</td>
</tr>
<tr>
<td>c. Amount of dechlorination agent utilized:</td>
<td>__________ lbs (gas)</td>
</tr>
<tr>
<td>d. Amount of dechlorination agent utilized:</td>
<td>__________ gpd (solution)</td>
</tr>
<tr>
<td>e. Concentration of dechlorination solution:</td>
<td>__________ percent</td>
</tr>
<tr>
<td>f. Density of dechlorination solution:</td>
<td>__________ pounds/gallon</td>
</tr>
<tr>
<td>g. Contact time based on PDDF:</td>
<td>__________ seconds</td>
</tr>
</tbody>
</table>

### 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: ____________________________________________