



**Commonwealth of Kentucky**  
Energy and Environment Cabinet  
**Division of Water**

**Construction Application  
For Drinking Water Treatment**

See the instructions for more information about selected portions of this application.  
Questions on completing this application? Contact the Water Infrastructure Branch at 502/564-3410, by e-mail at [WIBEngineering@ky.gov](mailto:WIBEngineering@ky.gov) or visit our website at <http://water.ky.gov> for more information.

**I. Treatment Project Information**

Project Name: \_\_\_\_\_

Project County: \_\_\_\_\_ Estimated Project Cost: \_\_\_\_\_

Project Latitude/Longitude (DMS): \_\_\_\_\_

Is this a federally funded project:

DWSRF

SPAP

Other: \_\_\_\_\_

If yes, has an Environmental Information Document (EID) been reviewed and approved? \_\_\_\_\_

If the project has been submitted to the State Clearinghouse for review, provide the SAI number: \_\_\_\_\_

Identify all other funding sources: \_\_\_\_\_

Does this project modify an existing water treatment plant? \_\_\_\_\_

Provide a DETAILED description of work to be performed for this project. Attach additional sheets as necessary:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Identify how the sanitary wastewater produced as a result of this project will be handled:

Sanitary Sewer

WWTP: \_\_\_\_\_

Septic Tank

Other: \_\_\_\_\_

**II. Utility Information**

Utility Name: \_\_\_\_\_ PWSID: \_\_\_\_\_

Street Address: \_\_\_\_\_ County: \_\_\_\_\_

City, State, Zip: \_\_\_\_\_

Phone #: \_\_\_\_\_ Fax #: \_\_\_\_\_ Email: \_\_\_\_\_

Is the system currently under any type of waterline sanctions or Agreed Orders? \_\_\_\_\_

If yes, will this project satisfy the terms of or alleviate an agreed order, water budget or any other form of sanction? \_\_\_\_\_

If yes, describe: \_\_\_\_\_

\_\_\_\_\_

### III. Design Considerations

#### A. Plans and Specifications

Plans and specifications shall comply with **401 KAR 8:100** and “**Recommended Standards for Water Works**” **2007 Edition (Ten States’ Standards)**. All plans must contain a P.E. seal, signature and date of signature with at least one set having an original seal and signature. Provide detailed plans (**no larger than 24” X 36”**) which must comply with **401 KAR 8:100**. See the instructions for additional details.

#### B. Design Engineer

Name: \_\_\_\_\_ Firm: \_\_\_\_\_

Street Address: \_\_\_\_\_

City, State, Zip: \_\_\_\_\_

Phone #: \_\_\_\_\_ Fax #: \_\_\_\_\_ Email: \_\_\_\_\_

#### C. Design Capacities

Communities Served: \_\_\_\_\_

Identify the number of connections in the service area: \_\_\_\_\_

Current Treatment Plant Design Capacity: \_\_\_\_\_ Proposed Treatment Plant Design Capacity: \_\_\_\_\_

Has a Preliminary Engineering Report been submitted and approved? \_\_\_\_\_

Have Water Withdrawal and KPDES permits been updated? \_\_\_\_\_

KPDES Permit # \_\_\_\_\_ Water Withdrawal Permit # \_\_\_\_\_

What type of treatment is/will be used:

- Conventional
- Ballasted Flocculation
- Membrane
- Dissolved Air Flotation
- Other: \_\_\_\_\_

Is pilot study data provided? \_\_\_\_\_

#### D. Other Information to be Submitted with Project

##### 1. Site

Provide a copy of the U.S.G.S. 7 1/2 minute topographic map with the location(s) of the proposed project.

What is the 100 year flood elevation for the project site? \_\_\_\_\_

What is the 500 year flood elevation or flood of record for the project site? \_\_\_\_\_

##### 2. Intake and Raw Water Transmission

Provide the Latitude and Longitude (DMS) of the intake and River Mile Index if known:

Latitude: \_\_\_\_\_ Longitude: \_\_\_\_\_ River Mile Index: \_\_\_\_\_

What is the raw water source? \_\_\_\_\_

Provide water level elevations for surface water sources:

Low Level: \_\_\_\_\_

Normal Level: \_\_\_\_\_

Flood Level: \_\_\_\_\_

For surface water sources, what type of intake will be used?

- Floating
- Screened
- Wet Well
- Other: \_\_\_\_\_

Does the intake have the capability to draw from multiple levels? \_\_\_\_\_ If yes, explain: \_\_\_\_\_

Is the intake screened? \_\_\_\_\_

Is a method for cleaning provided? \_\_\_\_\_ If yes, describe: \_\_\_\_\_

Where is the raw water sample tap located? \_\_\_\_\_

Are any chemicals fed at the intake? \_\_\_\_\_ If yes, list: \_\_\_\_\_

Is the intake more than 5 miles downstream or 1,000 ft upstream of any sewage outfall? \_\_\_\_\_

What is the flow rate into the intake? \_\_\_\_\_

If a groundwater source is used:

Number of Wells: \_\_\_\_\_ Well Capacities: \_\_\_\_\_

Provide water quality and quantity data for test wells.

Raw Water Pump Data:

Number of Pumps	Capacity (GPM)	TDH	Power (HP)

Are variable frequency drives (VFD) to be used? \_\_\_\_\_

Provide proposed pump's characteristic curve along with the efficiency, horsepower and NPSHR data.

Raw Water Transmission Main Data:

Waterline Material	Waterline Size	Linear Feet

Are any chemicals fed in the raw water transmission main or wet-well? \_\_\_\_\_

If yes, list: \_\_\_\_\_

**3. Pretreatment/Equalization**

Basin Volume: \_\_\_\_\_ Dimensions: \_\_\_\_\_

Purpose: \_\_\_\_\_

Are any chemicals fed here? \_\_\_\_\_ List the chemicals fed along with the feed locations: \_\_\_\_\_

Is aeration used? \_\_\_\_\_ If yes, purpose and type: \_\_\_\_\_

Are provisions to feed carbon provided? \_\_\_\_\_ Rate: \_\_\_\_\_

**4. Rapid Mix**

Type of Rapid Mix:

Static Mixer

Conventional Rapid Mix

Other: \_\_\_\_\_

Number of Mixing Basins: \_\_\_\_\_ Volume: \_\_\_\_\_ Dimension: \_\_\_\_\_

Retention Time: \_\_\_\_\_ Velocity Gradient (G): \_\_\_\_\_

**5. Flocculation**

Number of trains: \_\_\_\_\_ Number of Stages: \_\_\_\_\_

Basin Volume: \_\_\_\_\_ Dimensions: \_\_\_\_\_

Detention Time: \_\_\_\_\_ Flow through Rate: \_\_\_\_\_

Mixer Speed (sec): \_\_\_\_\_ Is the flocculation speed tapered through the process? \_\_\_\_\_

**6. Sedimentation**

Flow Velocity from Flocculation to Sedimentation: \_\_\_\_\_

Volume: \_\_\_\_\_ Dimensions: \_\_\_\_\_

Flow Through Velocity: \_\_\_\_\_ Detention Time: \_\_\_\_\_

Overflow Rate (gpm/ft<sup>2</sup>): \_\_\_\_\_ Weir Loading Rate (gpd/ft): \_\_\_\_\_

Are tube settlers to be used? \_\_\_\_\_ Dimensions: \_\_\_\_\_

Are Plate Settlers Used? \_\_\_\_\_ Dimensions: \_\_\_\_\_

What percentage of the projected horizontal plate area is the overflow rate for plate settlers based? \_\_\_\_\_

Is a sludge collection system provided? \_\_\_\_\_ Describe: \_\_\_\_\_

Is Ballasted Flocculation used? \_\_\_\_\_

If yes, provide the following:

Number of trains: \_\_\_\_\_ Capacity: \_\_\_\_\_ Basin Volumes: \_\_\_\_\_

Basin Dimensions: \_\_\_\_\_ Retention Time: \_\_\_\_\_

Number of Hydrocyclones: \_\_\_\_\_ Hydrocyclone Capacity (GPM): \_\_\_\_\_

Number of Recycle Pumps: \_\_\_\_\_ Recycle Pump Capacity (GPM): \_\_\_\_\_

Overflow Rate (GPM/ft<sup>2</sup>): \_\_\_\_\_ Number of Contact Basins: \_\_\_\_\_

Contact Basin Volume: \_\_\_\_\_ Contact Basin Dimensions: \_\_\_\_\_

Contact Time: \_\_\_\_\_

**7. Filtration**

*Granular Media*

Type of Filtration: \_\_\_\_\_ Number of Filters: \_\_\_\_\_

Filter Area: \_\_\_\_\_ Total Filter Box Depth: \_\_\_\_\_

Media	Depth	Effective Size	Uniformity Coefficient

Filtration Rate at Design Capacity: \_\_\_\_\_

Number of Backwash Pumps	Capacity	TDH	Power (HP)

Backwash Rate: \_\_\_\_\_

What is the source of the wash water supply? \_\_\_\_\_

Is air scouring or surface wash utilized? \_\_\_\_\_ Which? \_\_\_\_\_

Number of Backwash Troughs: \_\_\_\_\_ Dimensions: \_\_\_\_\_

Design Flow (gpm): \_\_\_\_\_ Distance from media surface to bottom of backwash trough: \_\_\_\_\_

Are rate of flow controllers provided for backwashing? \_\_\_\_\_

Is filter-to-waste capability provided? \_\_\_\_\_

Turbidimeter Locations:

- Raw Water
- Top of Filter
- Individual Filter Effluent (prior to filter-to-waste)
- Combined Filter Effluent
- Other: \_\_\_\_\_

*Membranes*

Type of membrane: \_\_\_\_\_ Capacity: \_\_\_\_\_ # of Skids: \_\_\_\_\_

Water Flux Rate (gpd/ft<sup>2</sup>): \_\_\_\_\_ Permeate Recovery (%): \_\_\_\_\_

Operating Pressure (psi): \_\_\_\_\_ Design Temperature (°F): \_\_\_\_\_

What cleaning agent will be used? \_\_\_\_\_ Cleaning Frequency: \_\_\_\_\_

Provide capacity calculations used to size membrane filters.

**8. Clearwell**

Number of Clearwells	Capacity	Dimensions	Baffled (yes/no)

If an offsite tank is used as a clearwell, provide location, coordinates and capacity: \_\_\_\_\_

Provide Contact Time (CT) Calculations.

**9. High Service Pumps**

Number of Pumps	Capacity (GPM)	TDH	Power (HP)

Are variable frequency drives (VFD) to be used? \_\_\_\_\_

Provide proposed pump's characteristic curve along with the efficiency, horsepower and NPSHR data.

**10. Disinfection**

Check all forms of disinfection to be used:

- Chlorine Gas
- Hypochlorite
- Chloramines
- UV
- Other: \_\_\_\_\_

List the locations of all disinfectant injection points: \_\_\_\_\_

**Chlorine Room Information:**

Exhaust Fan Capacity (cfm): \_\_\_\_\_ Air Exchange Rate: \_\_\_\_\_

Are air inlet louvers near the ceiling? \_\_\_\_\_ Do ventilation fans take suction near the floor? \_\_\_\_\_

Is the chlorine room equipped with panic hardware and alarms? \_\_\_\_\_

Is a bottle of Ammonium Hydroxide provided? \_\_\_\_\_

Does the chlorine room have a shatterproof inspection window? \_\_\_\_\_

Is SCBA equipment meeting NIOSH requirements located outside of the chlorine room? \_\_\_\_\_

Are separate switches for fans and lights provided outside of the chlorine room? \_\_\_\_\_

Is a gas scrubber provided? \_\_\_\_\_

**UV Information:**

UV Wavelength: \_\_\_\_\_ Dosage (MJ/cm<sup>2</sup>): \_\_\_\_\_

Are the bulbs protected? \_\_\_\_\_

Is the UV assembly accessible for cleaning and replacement of the bulbs, jackets, etc? \_\_\_\_\_

Is a sensor provided to ensure UV light is being delivered at the appropriate wavelength and dosage? \_\_\_\_\_

**Ammonia Information:**

Exhaust Fan Motor Capacity (cfm): \_\_\_\_\_ Air Exchange Rate: \_\_\_\_\_

Is ammonia room equipped with panic hardware and alarms? \_\_\_\_\_

Does the ammonia room have a shatterproof inspection window? \_\_\_\_\_

Are separate switches for fans and lights provided outside of the room? \_\_\_\_\_

Is a gas scrubber provided? \_\_\_\_\_

### 11. Other Chemicals

Provide information about chemicals to be used in the treatment process below:

Chemical	Purpose	Feed Location	Bulk Tank (gal)	Day Tank (gal)	Feed Rate at Design Capacity

Will Carbon be added as a premixed slurry or dry feed? \_\_\_\_\_

If dry feed, what is the hopper capacity? \_\_\_\_\_

Are fireproof/explosion proof precautions provided? \_\_\_\_\_ Describe: \_\_\_\_\_

Are floor drains and containment provided? \_\_\_\_\_

Chemical	Containment Capacity

### 12. Treatment Wastewater

Disposal Method for Treatment Wastewater:

- Lagoons
- Dewatering
- Other: \_\_\_\_\_

How much treatment wastewater does the water treatment plant produce? \_\_\_\_\_

Lagoon capacity: \_\_\_\_\_

Where does the decant water discharge? \_\_\_\_\_

### 13. General

- Provide a process flow schematic.
- Provide a signed letter of acceptance from the utility, which states that the utility has reviewed and approved the plans and specifications.
- If the project is funded by a State Revolving Fund Loan (SRF) provide a completed SRF Plans and Specifications Checklist along with 1 complete printed copy of the project specifications.

#### **IV. Fees**

Check or money order must be made payable to "Kentucky State Treasurer" for the total amount. Fees do not apply to projects FUNDED by a municipality, water district, or other publicly owned utility.

Project Category: \_\_\_\_\_ Total Amount: \$\_\_\_\_\_