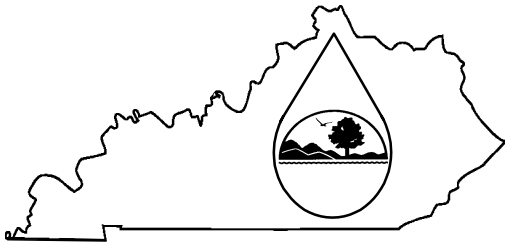
Form DW-2



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 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" 2012 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 ½ 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^2): _____ 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^2): _____ 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^2): _____ Permeate Recovery (%): _____

Operating Pressure (psi): _____ Design Temperature (^{o}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^2): _____

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: $_____