STATE OF CONNECTICUT DEPARTMENT OF PUBLIC HEALTH
DRINKING WATER SECTION
CHEMICAL FEED SYSTEM PROJECT APPLICATION

Instructions

This application is provided in the interest of facilitating the approval process for chemical feed system projects and must be submitted to the Department of Public Health (DPH) along with a General Application Form. A document entitled "Liquid Chemical Feed System Design and Installation Guidelines" is available on the DPH website http://www.ct.gov/dph/publicdrinkingwater for use as a reference in the design of a chemical feed system and identifies applicable Regulations of Connecticut State Agencies (RCSA) or Connecticut General Statutes (CGS). If feed systems are being proposed for separate chemicals, a separate application for each system needs to be completed. Additional supporting information as identified with an asterisk (*) in this application will need to be provided unless indicated otherwise. Specific and applicable RCSA or CGS will be stated within brackets [ ]. If the project overall has multiple components other than a chemical feed system (i.e. wells, tanks, pumps, etc.) additional applications may need to be submitted. Check off all items that apply.

Section A. General Information

PWS Name: _____

PWSID #: CT_____

Please provide the contact information of the primary person who can answer technical questions regarding this project:

Name: _____

Title: _____

Company: _____

Address: _____

_____

_____

Phone Number: _____

Fax Number: _____

E-mail Address: _____

Section B. Chemical Information

1. Purpose for use of chemical

- ☐ Disinfection (i.e. sodium hypochlorite, etc.)
- ☐ pH adjustment (i.e. sodium hydroxide, etc.)
- ☐ Corrosion Control (i.e. polyphosphate, hexametaphosphate, etc.)
- ☐ Coagulation (i.e. ALUM, ferric chloride, etc.)
- ☐ Fluoridation (i.e. hydrofluorosilicic acid, etc.)
- ☐ Oxidation (i.e. sodium hypochlorite, potassium permanganate, etc.)
- ☐ filter aid (i.e. polymer)
- ☐ Other: _____

Section B. Chemical Information (continued)

2. Chemical

Trade name: _____

Chemical name: _____

Chemical strength (percent): _____

Manufacturer: _____

☐ liquid ☐ dry

Delivery Container: ☐ 5 gal. carboy ☐ bags(#): _____

☐ 55 gal. drum ☐ bulk delivery ☐ Other: _____

The DPH accepts the use of a drinking water treatment chemical which is certified to ANSI/NSF Standard 60. ANSI/NSF Standard 60 is a national industry standard pertaining to the certification of drinking water treatment chemicals. There are third party accredited testing laboratories including, but not limited to: NSF (www.nsf.org), UL (www.ul.com), and WQA (www.wqa.org) which certify drinking water treatment chemicals to ANSI/NSF Standard 60. [RCSA Section 19-13-B80]

* A copy of a document identifying NSF Standard 60 listing for chemical proposed is provided. ☐ Yes ☐ No

Section C. Plans and Specifications

* 1. Scaled project plan sheet(s) or accurate construction drawing(s)/schematic(s) of the proposed chemical feed system and its location relative to applicable existing facility components needs to be submitted to the DPH. As a minimum the following components, if applicable, should be shown and labeled: bulk storage tank, tank fill line, transfer pump(s), day tank, chemical metering pump(s), feed line, carrying and/or make-up water pipe, point of chemical injection, secondary containment, flow switch, sample taps, isolation valves, etc.

2. Copy of contract bid specifications and/or manufacturers' specifications/cut sheets for major project components identified in this application, if already selected for installation, should be submitted.

3. A new treatment plant facility/structure must be located above the level of a 100 year flood. [RCSA Section 19-13-B102(d)(1)(A)]

* Verification must be provided (FEMA map or other).

Section D. Sources to be Treated and Design Flow Rate

Identify sources and/or facility, as may be applicable, at which treatment is to be installed:

Existing or Proposed Water Treatment Plant Name: _____

☐ Surface water supply; and name: _____

☐ Wells: number(s) and/or name(s): _____

Maximum design flow rate (gpm): _____

Section E. Feed System Components

1. Bulk Storage Tank(s)*

No. of tanks: _____

Volume (gallons): _____

Material of tank: _____

Covered: ☐ Yes ☐ No

Vented to outside: ☐ Yes ☐ No; If yes, is the vent shielded, screened and not located near ventilation air intake? ☐ Yes ☐ No

Are bulk tanks sized to provide at least a 30 day supply of chemical? ☐ Yes ☐ No

Level measuring: ☐ gal. incr. ☐ lb. scale

☐ Level sensor ☐ Site glass

☐ Other: _____

Secondary Containment provided: ☐ Yes ☐ No

Fill port: ☐ Yes ☐ No Locked: ☐ Yes ☐ No

Labeled as to chemical stored: ☐ Yes ☐ No

Section E. Feed System Components (continued)

2. Day Tank(s)*

No. of tanks: _____

Volume (gallons): _____

Material of tank: _____

Covered: Yes No

Vented to outside: ☐ Yes ☐ No; If yes, is the vent shielded, screened and not located near ventilation air intake? ☐ Yes ☐ No

Level measuring: ☐ gal. incr. ☐ lb. scale

☐ Level sensor ☐ Site glass

☐ Other: _____

Secondary Containment provided: ☐ Yes ☐ No

Labeled as to chemical stored: ☐ Yes ☐ No

Are day tanks sized to provide no more than a 30 hour supply of chemical? ☑ Yes ☐ No

3. Chemical Transfer (bulk storage tank to day tank)

Gravity: ☐ Yes ☐ No Transfer pump(s): ☐ Yes ☐ No If yes, No. of pumps: _____

Deadman switch/valve provided: ☐ Yes ☐ No

4. Chemical Metering Pump(s)*

No. of pumps: _____

Proposed dosage rate of chemical (mg/L): _____

Capacity of each pump (gals. per hr.): _____

Were metering pumps sized to provide adequate chemical dosage at maximum flow rate? ☐ Yes ☐ No

Pacing/activation of pump: ☐ well pump start ☐ booster pump start ☐ flow switch ☐ proportional to flow (4-20 mA meter signal) ☐ Other: _____

Controls provided for manual, off or automatic operation (HOA) of pump (s): ☐ Yes ☐ No

Anti-Siphon protection on metering pump or feed line: ☐ Yes ☐ No Four Function Valve: ☐ Yes ☐ No

* Are calculations used for sizing of bulk storage tank(s), day tank(s) and chemical metering pump(s) per Section E, items 1, 2 and 4 provided?: ☐ Yes ☐ No

5. Point of Chemical Injection and Chemical Feed Lines:

☐ Well discharge pipe ☐ Blended wells discharge pipe ☐ Prior to press. tank(s) ☐ Prior to atmospheric tank(s) ☐ Prior to filter unit(s) ☐ Other: _____

Chemical feed line: Check valve provided: ☐ Yes ☐ No Injection nozzle provided: ☐ Yes ☐ No

Chemical feed line(s) clearly labeled or color coded as to chemical in pipe: ☐ Yes ☐ No

6. Cross Connection Protection - Solution Make-up Water/Carrying Water Line [Section 19-13-B38 of RCSA]

Protection of solution make-up water supply for day tank: ☐ Hard piped with air gap ☐ Hose bib atmospheric vacuum breaker ☐ Other: _____

Protection of carrying water line: ☐ RPD provided ☐ Other: _____

7. Sampling Taps (smooth nosed and free of obstructions): [RCSA Section 19-13-B102]

Raw water (each source/well and prior to any treatment): ☐ Yes ☐ No

Point of Entry (required for compliance monitoring/after all treatment prior to distribution): ☐ Yes ☐ No

Section E. Feed System Components (continued)

8. Testing (Labs, Test Kits, Analyzer and/or Recorder) [RCSA Section 19-13-B102(g)]

Water samples taken for compliance monitoring must be analyzed and reported by a lab approved by the DPH.

Identify test parameter required for monitoring with the use of proposed chemical:

☐ chlorine residual ☐ pH ☐ phosphate ☐ fluoride

Are tests for parameter to be conducted by State Certified Laboratory?: ☐ Yes ☐ No

If yes, CT approved Lab: PH - _____

The DPH may grant an exemption from the use of laboratory when the analysis for the parameter is conducted by a CT certified treatment operator using a test kit or continuous analyzer conforming to a test methodology approved by the DPH. A list of methodologies approved by the DPH can be obtained upon request.

Is a test kit or analyzer to be used for compliance monitoring?: ☐ Yes ☐ No

If yes, test parameter: _____

☐ Test kit - Manufacturer/Model No.: _____ Testing Methodology: _____

☐ Analyzer - Manufacturer/Model No.: _____ Testing Methodology: _____

CT certified treatment plant operator who will use and maintain test kit and/or analyzer:

Name: _____ CT Certification #: _____

* A treatment plant operator must be identified and documentation from the manufacturer of test kit or analyzer as to its testing methodology must be provided to DPH before an exemption can be considered.

Method to retain test results from analyzer: ☐ Written log ☐ Chart recorder ☐ SCADA

☐ Other: _____

9. Controls and Alarms:

Are high level alarms provided on bulk tank? ☐ Yes ☐ No; on day tank? ☐ Yes ☐ No

Are alarms to be provided for test parameter being monitored by the continuous analyzer?: ☐ Yes ☐ No

If yes, check all applicable. Alarms: ☐ low level ☐ high level Alarm Type: ☐ audio ☐ visual ☐ dialer

☐ SCADA ☐ Other _____

Will analyzer high level alarm initiate shut down of chemical metering pump?: ☐ Yes ☐ No

10. Safety

Material Safety Data Sheets (MSDS) for chemical proposed to be kept at treatment facility: ☐ Yes ☐ No

Safety equipment to be provided at treatment facility: ☐ eyewash; ☐ shower ☐ other: _____

Section F. Water Treatment Plant/Operators (only Community and NTNC systems)

* For all new chemical treatment additions or modifications a "Water Treatment Plant Classification Form" and "Operator Verification Form" must be submitted. [RCSA Sections 25-32-8 and 25-32-9, respectively] These forms can be downloaded from the DPH's website. A Transient Non-Community (TNC) water system does not have to complete these forms.

An Operator Verification Form is not needed where the system is currently operated by an individual holding a Water Treatment Plant Operator Certification at or above the proposed treatment plant classification level.

Section G. Disinfection CT for a Chlorine Feed System

[RCSA Section 19-13-B102(e)(7)(M)] When a groundwater source/well not under the direct influence of surface water is chlorinated, a free chlorine residual of a least 0.2 mg/L after 10 minutes of contact, or the equivalent thereof, shall be used. CT therefore is 2 mg-min/L (0.2 mg/L x10 min).

The Ground Water Rule, which became effective December 1, 2009, allows a water system to operate a system for disinfecting water which will achieve 4-log inactivation of viruses to avoid the requirement to conduct triggered and/or assessment source/well water monitoring. The rule may also require 4-log inactivation of viruses if a system has a confirmed fecal indicator (E.Coli bacteria) present in its well water and physical corrective actions implemented have been unable to resolve the E. Coli contamination. A CT value of at least 6 mg-min/L (minimum residual chlorine concentration of 0.2 mg/L x 30 min or equivalent) must be maintained before or at the first customer/consumer and at a corresponding compliance sample location to demonstrate 4-log inactivation of viruses. "TECHNICAL GUIDELINES FOR DETERMINING DISINFECTION "CT" WHEN USING CHLORINE FOR DISINFECTION OF GROUNDWATER SOURCES OF SUPPLY" is available on the DPH website to assist in determining CT.

Does the proposed project include modifications to an existing chlorination system, point of chlorine injection, facility piping, etc. that would change CT, or is chlorination system being added to a system or water treatment plant which is currently does not chlorinate? Yes No
If yes, a separate DISINFECTION "CT" APPLICATION FOR A GROUNDWATER USING CHLORINE FOR DISINFECTION, available on the DPH website, must be submitted.

Section H. Certification

This application must be signed by the PWS administrative official, his/her authorized representative, or certified operator of the PWS.

I hereby certify that I have examined the information contained in this application as submitted to the DPH and have determined it to be accurate to the best of my knowledge:

Signature:	Date Signed:
Name (Print):	Telephone #:
Title and Relationship to PWS:	