

From: David Sloan
Sent: Fri, 14 Nov 2014 21:16:48 +0000
To: Russell Schreiber (Wichita Falls); Kerry D. Maroney
Cc: Daniel Nix (Wichita Falls); Mark Southard; Shawn Garcia
Subject: UV Exception Granted - TCEQ 11-10-14.pdf
Attachments: UV Exception Granted - TCEQ 11-10-14.pdf

I just received the attached letter from TCEQ granting the exception for the use of UV disinfection for the DPR and stating the required conditions. Everything looks OK to me except the requirement (Item 2) for flow measurement on the inlet to each reactor, which I think is unnecessary given the intent to operate only a single reactor at a time. I propose to respond on Monday with a piping layout (revised to reflect City comments) and explanation that individual flow measurement is not necessary because:

1. Total flow is measured downstream with the existing permeate flow meter and will be the basis for reactor control and inactivation calculations.
2. Total flow will not exceed the capacity of a single reactor.
3. Valve positions will be documented during operator walkthroughs to verify that all flow is through the in-service reactor.

Please let me know if you have other thoughts on the reply or other concerns regarding the TCEQ letter.

Best regards,

DAVID W. SLOAN, P.E., BCEE
SENIOR PROCESS ENGINEER
BOARD CERTIFIED ENVIRONMENTAL ENGINEER



WATER / WASTEWATER TREATMENT & REUSE
4055 INTERNATIONAL PLAZA, SUITE 200 | FORT WORTH, TX, 76109
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Bryan W. Shaw, Ph.D., P.E., *Chairman*
Toby Baker, *Commissioner*
Zak Covar, *Commissioner*
Richard A. Hyde, P.E., *Executive Director*



PWS_2430001_CO_20141110_EXCEPTION

Texas Commission on Environmental Quality

Protecting Texas by Reducing and Preventing Pollution

November 10, 2014

Mr. David W. Sloan, P.E., BCEE
Freese and Nichols
4055 International Plaza, Suite 200
Fort Worth, TX 76109

Subject: City of Wichita Falls – PWS ID No. 2430001
Request for an Exception to the UV-Pathogen-Removal Rule
Wichita County, Texas

RN 105598759;

CN 600129316

Dear Mr. Sloan:

On October 17, 2014, the Texas Commission on Environmental Quality (TCEQ) received your letter dated October 17, 2014, requesting an exception for innovative/alternate treatment to apply an ultra violet (UV) light for a pathogen-removal process for UV disinfection credit at the City of Wichita Falls (City) Cypress surface water treatment plant (SWTP). The requirements for UV-pathogen-removal are specified in Title 30 of the *Texas Administrative Code* (30 TAC) §290.42(g)(5). The City proposes to use the TrojanUV Swift™ ECT 8L24-2L model for UV disinfection treatment at the Cypress SWTP. Your letter includes data from a SWTP revised concentration time (CT) study that shows the TrojanUV Swift™ ECT 8L24-2L UV-reactor system will be operated at a maximum flow rate of 10.0 million gallons per day (MGD). Based on our review of your letter and data, we are **granting** an exception for UV-pathogen-removal treatment under these conditions:

1. The City must operate the TrojanUV disinfection unit as required by the Enclosure 1, *TCEQ TrojanUVSwift™ 8L24-2L Approval Letter*, dated October 14, 2014.
2. A flow-measuring device must be installed on the inlet piping of each UV reactor.
3. UV light sensor and UVT analyzers must be properly calibrated as required in 30 TAC §290.46(s)(2)(D).
4. The City must continuously monitor and record UV intensity as measured by a UV sensor, lamp status, flow rate through the unit, UV transmittance, and lamp power, in accordance with 30 TAC §290.111(d)(3)(A).

5. The City must monitor and record the amount of water treated by each UV unit each month and the amount of water produced each month when the unit is not operating within validated conditions in accordance with 30 TAC §290.111(d)(3)(B). A UV unit is considered to be operating outside the validated conditions when:
 - a. the validated dose falls below that dose needed to achieve the target level of pathogen inactivation,
 - b. the reactor operates at a flow rate that exceeds the maximum validated flow rate,
 - c. the UV transmittance of the water falls below the minimum validated UVT, or
 - d. one or more of the lamps is inoperative.
 - e. The Cypress SWTP must provide a minimum 3.0-log inactivation of *Cryptosporidium* through the use of UV light. If the Cypress SWTP produces off-spec water for more than four (4) consecutive hours during a day, the SWTP must be taken off-line, and the UV reactor must be inspected, and, if necessary, repaired.
6. If the TrojanUV Swift™ 8L24-2L reactor is operated at flow rates below 1.0 MGD or the UV transmittance of the water being treated by this reactor exceeds 98%, the calculated reduction equivalent dose (RED_{calc}) value must be based on a minimum validated flow rate of 1.0 MGD and a maximum validated UVT of 98%.
7. Standard Operating Procedures (SOPs) must be written for the handling of “off-spec” water, water produced under conditions outside the validated operating parameters. These SOPs must be submitted to the TCEQ for review at the same time the construction plans are submitted.
8. Monitoring and recording, using the SWMOR-Alt form (see Enclosure 2), are required for flow rate, UV sensor readings, lamp status, etc., at least once every 15 minutes, when disinfection credit is being claimed.
9. The City must keep a copy of the Trojan UV validation report on site, and the SWTP operators must have a way to verify that the proper control algorithms and coefficients are being used for each Trojan UV unit at the SWTP.

The proposed UV system has been sized to provide a 3.0-log inactivation of *Cryptosporidium*. The Cypress SWTP installation will involve the 24-inch TrojanUVSwift™ ECT 8L24-2L reactor with 2 lamps. The 8L24-2L reactor will operate at flow rates of up to 10.0 MGD, with a second 8L24-2L reactor serving as the stand-by reactor. The maximum approved disinfection credits for the reactor and operating condition are described in the table below.

TrojanUVSwift™ ECT 8L24-2L UV Disinfection Design Criteria

Design Criteria	Type of Unit	Design Value
Flow Rate	MGD	0.0 - 10.0
<i>Cryptosporidium</i> disinfection	Log inactivation	3.0
<i>Giardia</i> disinfection	Log inactivation	3.0

Engineering plans and specifications for the proposed UV disinfection system **are** required to be submitted to the TCEQ's Utilities Technical Review Team (UTRT, MC 159) for review and approval of their construction as specified in 30 TAC §290.39(h)(1). Please contact the UTRT leader, Ms. Vera Poe, P.E., by phone at (512) 239-6988, or email at Vera.Poe@tceq.texas.gov for submission instructions for the plan review of your plans-and-specifications submittal.

Mr. David W. Sloan, P.E., BCEE

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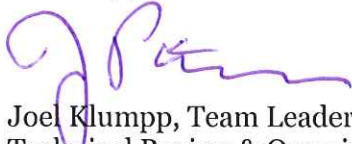
All granted exceptions are subject to periodic review with subsequent amendments, revision, or revocation possible if evidence is found that the granting of an exception results in a degradation of water quality or water supply.

This exception is not intended to waive compliance with any other TCEQ requirement in 30 TAC Chapter 290, or in the conditional approval letter, dated August 5, 2014, for Full-Scale Operation of the Temporary DPR Project. This exception cannot be used as a defense in any enforcement action resulting from noncompliance with any other requirement of 30 TAC Chapter 290.

If you have any questions, or need further assistance, please contact Mr. Bill Melville, P.E., at Bill.Melville@tceq.texas.gov, or by telephone at (512) 239-4729, or by correspondence at the following address:

Technical Review & Oversight Team (MC 159)
Texas Commission on Environmental Quality
P.O. Box 13087
Austin, Texas 78711-3087.

Sincerely,



Joel Klumpp, Team Leader
Technical Review & Oversight Team
Plan & Technical Review Section
Water Supply Division
Texas Commission on Environmental Quality

JPK/WRM

Enclosures: 1. TCEQ TrojanUVSwift™ 8L24-2L Approval Letter, dated October 14, 2014
2. SWMOR-Alt Form

cc: The Honorable Glenn Barham, Mayor, City of Wichita Falls, P.O. 1431,
Wichita Falls, TX 76307-1431