



April 26, 2005

Dan Sallee,  
President

G. L. "Skipper" Rush, Jr.,  
Vice President

Stacey Lee Burnett,  
Assistant Vice President

Douglas C. "Cam" Postle,  
Secretary

Arthur "Art" Garden,  
Assistant Secretary

Karla Cannon,  
Director

Johnny Nelson,  
Director

Bruce G. Parker,  
Director

Larry A. Wepler, P.E.,  
Director

To: Municipal Utility Districts in West Harris County  
Regional Water Authority ("MUDs") and City of Katy;  
their attorneys, operators and engineers  
From: West Harris County Regional Water Authority  
RE: Disinfection Conversion

In mid-2005, the West Harris County Regional Water Authority ("Authority") will begin receiving surface water from the City of Houston ("COH") for distribution to several MUDs within the Authority. This surface water to be delivered to the Authority's system will already be disinfected with chloramines by the COH.

The COH uses chloramines for several reasons, including:

- to reduce formation of disinfection byproducts (DBPs) which occur when free chlorine reacts with organic matter; and
- because chloramines provide a longer lasting disinfection residual.

Mixing surface water that has been disinfected with chloramines with ground water that has been disinfected with chlorine is problematic, and has the potential to raise concerns relating to taste, odor and health problems. The Authority will **require** — as a prerequisite to a MUD connecting to the Authority's surface water transmission system — that the MUD must first convert to chloramine disinfection. This requirement is outlined in Section 5.07 of the Authority's Amended Rate Order, dated April 13, 2005 (online at [www.whcrwa.com](http://www.whcrwa.com)).

The following MUDs will be connecting to the Authority's water transmission system in the next several months and are currently in the process of installing chloramine disinfection systems:

Harris County MUD No. 130  
Harris County MUD No. 155  
Harris County MUD No. 162  
Harris County MUD No. 163  
Harris County MUD No. 179  
Harris County MUD No. 186  
Harris County MUD No. 188  
Harris County MUD No. 208  
Horsepen Bayou MUD  
Spencer Road PUD

Additional MUDs will be connected to the Authority's system in the near future. Because there are numerous water interconnects between MUDs within the WHCRWA boundaries, the Authority is providing notice of chloramine conversion to **all** MUDs via this memorandum.

TCEQ Rules require MUDs to, among other things, notify:

- the TCEQ prior to modifications to their disinfection systems; and
- MUD customers about specific information pertaining to conversion to chloramines.

For additional clarification, a copy of the "*Use of Chloramines*" *Public Drinking Water staff guidance* document is attached, and may also be accessed online at:

[www.tnrcc.state.tx.us/permitting/waterperm/pdw/49.pdf](http://www.tnrcc.state.tx.us/permitting/waterperm/pdw/49.pdf).

All MUDs should be aware that change to *chloramines can cause problems to **persons dependent on dialysis machines***. A condition known as *hemolytic anemia* can occur if the disinfectant is not completely removed from the water that is used for the dialysate. Consequently, the pretreatment scheme used for the dialysis units must include some means, such as a charcoal filter, for removing the chloramines prior to the date of chloramine conversion. **Medical facilities** should also determine if additional precautions are required for other medical equipment.

In addition, chloraminated water **may be toxic to fish**. MUD customers with fish tanks should make sure that the chemicals or filters that they are using are designed for use in water that has been treated with chloramines. MUD customers may also need to change the type of filter that they use for the fish tank.

The Authority reminds the MUDs being converted to surface water — *as well as those obtaining water from the above listed MUDs being converted, or those otherwise receiving (directly or indirectly) water through interconnects with MUDs being converted* — that they must:

- take any necessary action with respect to their water disinfection systems; and
- notify their customers of the conversion to chloramine disinfection pursuant to TCEQ Rules.

Each MUD may want to consult with their attorney, engineer and operator concerning the appropriate steps, procedures and notices that the MUD should undertake.

***In light of the potential health issues, the Authority recommends that MUDs also take any further action determined appropriate by the MUD (in addition to the notice to customers required by TCEQ Rules) in order to adequately notify MUD customers about chloramines disinfection. The Authority will not be responsible to notify MUD customers regarding chloramines disinfection.***

We appreciate your consideration and assistance in helping the Authority accomplish the conversion to surface water.

If you have any questions, please call the Authority's Engineer, Wayne G. Ahrens, P.E., at (713) 527-6378.

Sincerely yours,



**Dan Sallee, President**  
**WEST HARRIS COUNTY REGIONAL WATER AUTHORITY**

# **TEXAS COMMISSION ON ENVIRONMENTAL QUALITY**

## **PDW PROGRAM STAFF GUIDANCE**

**Guidance Title: USE OF CHLORAMINES**

**Rules Affected: 30 TAC §290.39(j), §290.39(l) and §290.42(e)(3)(G)**

**PAGE 1 of 4**

### **Background**

Many public drinking water systems use or are converting to the use of chloramines as a disinfectant in treatment processes and to maintain a residual throughout the distribution system. The combination of chlorine and ammonia significantly reduces the interaction with naturally occurring organic acids to form trihalomethanes and haloacetic acids. Thus, systems are able to comply with the maximum contaminant levels for these disinfection byproducts. However, this change from previous routines in water treatment to the use of chloramines at a treatment plant can cause serious problems to persons dependent on dialysis machines unless the disinfectant is completely removed before the water used as a dialysate. A condition known as hemolytic anemia can occur.

30 TAC §290.39(j) identifies a change in treatment as a significant change and requires a PWS to notify the TCEQ in writing prior to the modification to the treatment process. After review of the written notification, TCEQ is required to notify the PWS if engineering plans and specifications are required. 30 TAC §290.42(e)(3)(G) states that the use of a disinfectant other than chlorine is to be considered on a case-by-case basis under the exception guidelines of 30 TAC §290.39(l). All requests for exceptions must be received and approved in writing.

### **Staff Guidance**

1. The notification of a proposed change to chloramines as a disinfectant and exception request must be submitted in writing by the water system's owner, representative, or professional engineer. All requests are to be logged into the Water Utilities Database (WUD) by the Technical Review and Oversight Team under the PWS's ID number, "Documents" and as a "Exception Request."
2. The exception request will be granted or denied based on a review of its merits and a consensus between reviewing Water Supply Division teams and the applicable region management. Appropriate correspondence will be drafted and transmitted to system officials which either:
  - A. Denies the request and states why the request cannot be granted or requests additional information; or,
  - B. Grants the request and formalizes conditions the PWS must meet under which the exception is granted.
3. 30 TAC §290.39(l) states that requests for exceptions are to precede the submission of engineering plans and specifications. However, if the PWS's staff or engineering representative determines that engineering plans and specifications will be required by the TCEQ, they may be submitted in conjunction with the exception request and a revised CT study (if required).
  - A. The Utilities Technical Review Team must notify the Technical Review and Oversight of the receipt of requests for exceptions so that they can be logged into WUD.

**CONTINUED**

# TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

## PDW PROGRAM STAFF GUIDANCE

**Guidance Title: USE OF CHLORAMINES**

**Rules Affected: 30 TAC §290.39(j), §290.39(l) and §290.42(e)(3)(G)**

PAGE 2 of 4

- B. The review must be coordinated between the two teams.
  - C. The reviewer for the Utilities Technical Review Team must copy the Technical Review and Oversight Team Leader on all correspondence related to this review.
  - D. After receiving copies of correspondence from the Utilities Technical Review Team regarding the review of an exception request, the Technical Review and Oversight Team Leader will assign a team member to enter into WUD the "Action" (granted or denied), required comments, reviewer's initials and the TCEQ letter date under "Final Letter Date."
4. If engineering plans and specification were not received with the written notification, it must be determined if engineering plans and specifications are required. **Engineering plans and specifications are not required if the submittal states all of the following:**
- A. The PWS will be purchasing ANSI/NSF Standard 60 certified liquid ammonia sulfate (LAS) in drums;
  - B. Adequate spill containment facilities for the LAS drums exist or will be provided by acceptable spill containment skids;
  - C. Specifications for the chemical feed facilities;
  - D. No change in the current chlorine disinfection type (i.e., gas to sodium hypochlorite) is proposed; and,
  - E. All current and proposed chlorine and LAS application points are identified.
5. If it is determined that engineering plans and specifications **are required** and this exception is to be granted, the TCEQ's correspondence must contain the following conditions to be met by the PWS.
- A. Engineering plans and specifications must be submitted to the TCEQ's Utilities Technical Review Team; and,
  - B. The PWS must receive written approval to construct prior to construction beginning.
6. If it is determined that engineering plans and specifications **are not required** and this exception is to be granted, the TCEQ's correspondence must state that the PWS shall not be required to submit engineering plans and specifications for TCEQ review and approval to construct.
7. If the PWS submitting the request is required to have a TCEQ approved CT study, the exception request must be reviewed to determine if a revised CT study is required. **A revised CT study is required if any one of the following is proposed:**
- A. A new disinfection application point(s) is proposed; or,
  - B. Other proposed modifications that will change the water volume of a treatment unit; or,

CONTINUED

# TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

## PDW PROGRAM STAFF GUIDANCE

**Guidance Title: USE OF CHLORAMINES**

**Rules Affected: 30 TAC §290.39(j), §290.39(l) and §290.42(e)(3)(G)**

PAGE 3 of 4

- C. Any other condition that the Technical Review and Oversight Team determines will require verification of the inactivation credit required to meet the treatment technique requirements.
8. If a revised CT study is not received, but is **required**, and this exception request is to be granted, the TCEQ's correspondence must contain the following conditions to be met by the PWS.
- A. A revised CT study must be submitted to the TCEQ Technical Review and Oversight Team for review; and,
  - B. The PWS must receive written TCEQ approval of the revised CT study prior to providing chloraminated water to the public.
9. If a revised CT study is **not required** and this exception is to be granted, our letter must contain the following conditions to be met by the PWS to receive the granted exception.
- A. The PWS's operators must change the disinfectant code entered for <disinfection zone> in the "Performance Data" on the SWMOR from "FCL" to "CLA;" and,
  - B. The PWS must notify the TCEQ's Technical Review & Oversight Team at least 30 days prior to providing chloraminated water to the public.
10. If engineering plans and specification and a revised CT study **are both required**, the CT study shall not be reviewed until a copy of the Utilities Technical Review Team's correspondence issuing approval to construct has been received by the Technical Review and Oversight Team.
11. If engineering plans and specifications **are not required**, but a revised CT study was received with the written submittal, a Technical Review and Oversight Team member who reviews CT studies shall review the exception request in conjunction with the CT study.
12. All TCEQ correspondence granting an exception to use chloramines as a disinfectant must contain the following conditions to be met by the PWS prior to providing chloraminated water to the public.
- A. The PWS officials must provide public notice to all customers at least **14 days** prior to the change to chloramines is to occur with emphasis on the fact that dialysis patients may be affected by the change. Specifically, the notification must be provided to the renal disease facilities, dialysis clinics, hospitals, physicians, local health departments, etc. The notice must state that the pretreatment scheme used for the dialysis unit provide some means, such as a charcoal filter, for removal of chlorinating agents.

CONTINUED

**TEXAS COMMISSION ON ENVIRONMENTAL QUALITY**

**PDW PROGRAM STAFF GUIDANCE**

**Guidance Title:** USE OF CHLORAMINES

**Rules Affected:** 30 TAC §290.39(j) and §290.42(e)(3)(G)

PAGE 4 of 4

B. The following wording must be contained in the public notice:

On *<Date>*, the *<water system name>* will be changing the disinfectant that we use from chlorine to chloramines. This change is intended to benefit our customers by reducing the levels of disinfection byproducts (DBPs) in the system, while still providing protection from waterborne disease.

However, the change to chloramines can cause problems to persons dependent on dialysis machines. A condition known as hemolytic anemia can occur if the disinfectant is not completely removed from the water that is used for the dialysate. Consequently, the pretreatment scheme used for the dialysis units must include some means, such as a charcoal filter, for removing the chloramine prior to this date. Medical facilities should also determine if additional precautions are required for other medical equipment.

In addition, chloraminated water may be toxic to fish. If you have a fish tank, please make sure that the chemicals or filters that you are using are designed for use in water that has been treated with chloramines. You may also need to change the type of filter that you use for the fish tank.

13. After receiving a copy of the signed letter from the Water Supply Division Support Staff, the reviewer must enter the "Action" (granted or denied), required comments, initials and the TCEQ letter date under "Final Letter Date" into WUD. If the reviewer does not have rights to enter this data, assistance must be requested from a Technical Review and Oversight Team member who does.

END

April 1, 2004

Effective Date

\_\_\_\_\_  
Expiration Date



Buck Henderson, Section Manager  
Public Drinking Water Section  
Water Supply Division