



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6

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DALLAS, TX 75202-2733

MAY 23 2008

Mr. Dan Eden, Deputy Director
Office of Permitting, Remediation and Registration (MC-122)
Texas Commission on Environmental Quality
P.O. Box 13087
Austin, TX 78711-3087

Dear Mr. Eden:

Thank you for the opportunity to review and comment on the draft proposals TCEQ has developed with respect to the "Procedures to Implement the Texas Surface Water Quality Standards" guidance document. Our detailed comments are included as an attachment to this cover letter.

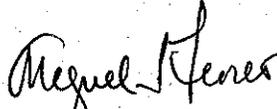
In February 2005, the Environmental Protection Agency (EPA) Region 6 initiated a process with its State counterparts, to come into full compliance with the State and Federal regulations applicable to the State-delegated National Pollutant Discharge Elimination System (NPDES) implementation of whole effluent toxicity (WET) requirements. As previously outlined, these minimal requirements consist of 1) a procedure to assess reasonable potential for WET during permit development and 2) where reasonable potential for WET is demonstrated, based on lethal or sub-lethal effects, as demonstrated by toxicity testing, the inclusion of WET limits in permits.

TCEQ had asked for and EPA granted additional time for changes to go through the states stakeholder process and EPA granted an extension. The proposed revisions in the IP document presented two options for addressing the reasonable potential requirements. In short, as we have indicated verbally to your staff, the process presented as Option 1 in this revised chapter for Whole Effluent Toxicity does not meet the minimal federal requirements. Option 2 would, in principal, be acceptable; however, insufficient detail has been presented to allow for a meaningful review. Specific comments to these options are included in our attached document.

Additionally, On March 9, 2006, EPA recommended that TCEQ revise the implementation procedures to ensure that domestic discharges from minor facilities include protective limits on total residual chlorine. We note that this issue has not been addressed in the current TCEQ proposal. We reiterate our concerns that TCEQ permits which require minor discharge facilities to maintain a minimum chlorine level of 1-4 mg/l, without requiring dechlorination, constitute a serious potential for in-stream toxicity when the discharge is to receiving waters that do not provide significant dilution. Facilities with known or suspected toxicity problems are the first priority listed under EPA's Post Third-Round NPDES Permitting Strategy. We request that TCEQ expeditiously address this issue.

We look forward to continuing work with you and your staff on the protection of water resources. If you have any questions, please contact me at (214) 665-7101 or have your staff contact Claudia Hosch at (214)-665-6464 (Email: hosch.claudia@epa.gov).

Sincerely,



Miguel I. Flores

Director

Water Quality Protection Division

Attachment

cc: Tiemann, Sidne TCEQ, MC-150, PO BOX 13087, Austin, Texas 78711-3087

Page 1, Paragraph 1

Whole effluent toxicity (WET) testing, also known as biomonitoring, is required in permits for dischargers whose effluent has a significant potential for exerting toxicity in the receiving water (§307.6(e)(2)(A) of the Standards and 40 CFR §122.44(d)(1)(v)).

As noted in our comments on the Texas Water Quality Standards, the statement at §307.6(e)(2)(A) should be revised to more accurately portray the difference between situations where limits are required to control WET versus monitoring requirements for WET. 40 CFR §122.44(d)(1)(v) addresses conditions by which limits on WET are required, not WET monitoring. Whole effluent toxicity biomonitoring (also known as WET monitoring) is required of all discharges classified as “Majors” and those minors with suspected toxicity. The implementation procedures, like the standard, should be revised to preclude any misunderstanding.

Page 1, Paragraph 2

Drinking water facilities using reverse osmosis/desalination technologies are not subject to WET testing.

EPA believes it is inappropriate to attempt to exempt a category of dischargers through the implementation procedures – if an exemption is allowed it should be granted through the water quality standards. In addition, a rationale or defensible basis for the exclusion rationale should support the exemption. It is unclear why these facilities, which concentrate total dissolved solids and may add treatment chemicals such as flocculants, polymers and sulfuric acid during maintenance, would be exempted from WET requirements. Discharge of the backwash from these facilities may impact the receiving stream just as any other toxic discharge would.

Page 1, Bullet 4

- a discharge with the potential to exert toxicity in the receiving water.

As noted in previous EPA comments to TCEQ (e.g., see EPA letter to Ms. L’Oreal Stepney dated March 9, 2006, Recommendations on the Upcoming Revision to the Water Quality Standards Implementation Procedures), many TCEQ permits for minor (< 1.0 mgd) POTW facilities include requirements to maintain chlorination level of 1.0 to 4.0 mg/l, with no requirements to dechlorinate prior to final discharge. These permits force the discharge of a known toxic pollutant in known toxic amounts, placing the permittee and the regulatory agencies in an untenable situation - and in conflict with the above bullet from the water quality standards implementation procedures (IPs). We note

that this issue has not been addressed in the current TCEQ proposal. We reiterate our concerns that TCEQ permits which require minor discharge facilities to maintain a minimum chlorine level of 1-4 mg/l, without requiring dechlorination, constitute a serious potential for in-stream toxicity when the discharge is to receiving waters that do not provide significant dilution. Chlorine is a very fast acting toxicant that can dissipate during the 36-hour shipping and holding period allowed. Thus, wastewater samples used for WET testing may not be representative of the toxic impacts occurring in the stream. As in our previous comments in the referenced letter, EPA strongly requests that TCEQ require minor POTW facilities with design flows of 0.5 mgd or greater to dechlorinate their effluent prior to discharge and comply with the standard permit limit for total residual chlorine in effluents to prevent ongoing toxic discharges.

Page 1, Bottom

Permittees with more than one flow phase in their permit begin WET testing upon expansion to 1 MGD or greater ~~or completion of the final phase.~~

Permittees must begin WET testing when the discharge exceeds 1 mgd, not when the final phase is completed. This would allow for the potential continued discharge of >1.0 mgd for years before completion of a final phase and WET testing requirements to be applied. In fact, POTWs are designated as major discharges when the design flow (not actual flow) exceeds 1.0 mgd. Thus WET testing, permit reporting and other requirements applicable to major dischargers should become effective when the design capacity reaches 1.0 mgd.

Page 1, Bottom, to top of Page 2

As noted above, minor POTWs may be exerting significant toxic impacts on receiving streams due to the permit requirements for chlorination which require the discharge of unacceptable levels of chlorine without dechlorination. Considering the number of minor POTWs with these requirements, this could be a very significant and widespread problem in Texas.

Page 2 Industrial Dischargers, Bullet 2

- a continuous discharge of process treated wastewater

For use of the terms continuous and dis- or non- continuous to have meaning, the terms must be specifically defined. In order for EPA to properly assess this section, we request that TCEQ provide further information including the specific definitions intended for use under this section.

Page 6, Statistical Interpretation of Test Results, Paragraph 1

If significant toxicity is demonstrated (that is, if there is a statistically significant difference in a measured response at the critical dilution when compared to the control), but the conditions of

test acceptability are met and the measured endpoint equals or exceeds the acceptability criteria at the critical dilution and all dilutions below that, then the permittee may report an endpoint of not less than the critical dilution for that response.

EPA disagrees with this proposed revision as a blanket application. Its application could result in an unacceptable increase in false negative test results, thus allowing the potential to exceed the State narrative water quality standard designed to protect aquatic life. However, prior to final comment and decision on this paragraph, EPA requests TCEQ provide specific examples of test results demonstrating how this could be applied. These examples must include the extreme scenarios that would occur.

Page 6, Statistical Interpretation of Test Results, Paragraph 2

In addition, for sublethal responses, the nominal error rate (alpha) used for hypothesis testing in WET data analysis will be 0.01 (99% confidence interval). For lethal responses, alpha remains 0.05 (95% confidence interval). The alpha level for sublethal statistical analysis was modified in accordance with EPA guidelines (EPA 821-R-B-00-004).

EPA strongly disagrees with this proposal as a default approach. Reducing alpha unacceptably increases the probability of false negative test results (a finding of no impact when an impact actually occurs). The WET test methods, promulgated as federal regulations, recommend an alpha level of 0.05 for hypothesis testing, as implemented by TCEQ. The above cited guidance states, at page 2-3:

What alpha level is recommended in the WET method manuals?

Traditionally, scientists have set alpha for biological studies at 0.01 to 0.1 (1 to 10%). The 0.01 level, at one extreme, provides a statistically conservative error rate that minimizes false positives. The 0.1 level, at the other extreme, provides a statistically more liberal error rate which results in increased statistical power. Zar (1984) states that a probability of 5% or less is commonly used as a criterion for rejection of the H_0 , and that when the 5% chance of an incorrect rejection of the hypothesis is unacceptably high, then a 1% level of significance is sometimes used. The WET test method manuals recommend an alpha of 0.05 for hypothesis testing (see Section 9 of USEPA 1994a; USEPA 1994b). The experimental test designs of the WET test methods (e.g., replicates, treatments, number of organisms) have limits to the magnitude of toxic response that they are able to detect given a specific alpha level (Denton and Norberg-King, 1996; USEPA, 2000); smaller effects will generally not be detected. If the recommended test alpha level is reduced, the experimental test design may need modification (e.g. increased test replication) to maintain the same level of test sensitivity.

Page 2-3 of the EPA guidance referenced is very specific with regard to when the hypothesis test alpha level can be reduced from 0.05 to 0.01 “...provided that the WET test is able to maintain adequate test sensitivity (as

demonstrated by successfully meeting a set criterion for minimum significant differences [MSDs] using an alpha of 0.01.” (emphasis added)

The guidance goes on to discuss when alpha should not be reduced (page 2-4):

When should alpha not be reduced?

The alpha level of a test should not be reduced unless the regulatory authority allows or specifies an alpha of 0.01 in the NPDES permit (see “What is the recommended decision process for determining the appropriate alpha level?”). The alpha level of a test also should not be reduced if the test does not maintain adequate test sensitivity. This determination is made by comparing the test MSD (calculated using the reduced alpha of 0.01) to recommended maximum MSD levels (see “How can adequate test sensitivity be confirmed?”). If the test MSD (calculated using the reduced alpha of 0.01) is greater than the MSD criterion, alpha should not be reduced to 0.01, and results should be reported using the standard alpha level of 0.05.

A significant portion of Chapter 2 of the guidance is devoted to how to set the conditions for a reduced alpha level. EPA believes that, based on the promulgated WET methods as used by TCEQ and the guidance regarding the use of reduced alpha, that the IPs should allow for the use of an alpha of 0.01 be allowed where the test has first met the test acceptability requirements at the standard alpha of 0.05, including meeting the PMSD requirements. Then, if all the requirements (including all those established in Chapter 2 of the guidance) are met and further analysis at the reduced alpha is found to be appropriate, the analysis could be employed. Permits would need to contain language to require that the full test report for any test analyzed using the reduced alpha include full documentation to support the decisions made, and each full report must be submitted for Agency review.

Finally, the correct document number for the referenced guidance is:
(EPA 821-B-00-004).

Page 7, Last Paragraph

If significant lethality is demonstrated in the first year of quarterly testing, that species is not eligible for the testing frequency reduction and the permittee must then test quarterly for the permit term. If significant sublethality is demonstrated in the first year of quarterly testing, the permittee will not be eligible for the testing frequency reduction for that species until no significant effects are demonstrated for four consecutive quarterly tests. If a testing frequency reduction has been granted for a species, but that species subsequently demonstrates significant lethality, the quarterly testing frequency for that species will be resumed for the permit term. If a testing frequency reduction has been granted for a species, but that species subsequently demonstrates significant sublethality, the quarterly testing frequency for that species will be resumed until four consecutive quarterly tests demonstrate no significant effects.

EPA disagrees with this proposal. The portions of the above section dealing with sublethality are inadequate with respect to ensuring compliance with the narrative criteria for the protection of aquatic life and they are in conflict with the added text on page 15 regarding sublethal toxicity reduction evaluations (TREs). No action is required to preclude future sublethal toxic discharges. EPA and the TCEQ water quality standards do not differentiate between protection for aquatic life regardless of whether the effects are lethal or sublethal.

Pages 8 and 9, Old and New WET Testing Frequency Charts

As noted above, the responses to sublethal toxicity are inadequate. We also note that the chart does not direct a TRE for the sublethal test endpoint. This is in conflict with the text on page 15 which discusses sublethal TREs. Also, the new chart (Figure 2) states that only two retests are required after a test failure, while the proposed new text on page fifteen stipulates three retests after a lethal or sublethal test failure. EPA agrees that three retests are appropriate.

Page 10, Bullet 2

- a permitted flow above 10 MGD (for domestic facilities)

EPA recognizes 10 mgd is an arbitrary point; this agency too has used flow as a means to set WET testing frequencies. However, we encourage TCEQ to join us in considering that flow alone may not be a meaningful way to address frequency of testing. Facilities with much smaller flow and a critical dilution above 70% may have significantly greater potential for instream impacts than a 10 mgd facility discharging to a river.

Page 10, End of Section “Additional Factors”

Higher testing frequencies may also be required for ~~The TCEQ may require more frequent WET testing for permittees that have historical WET testing problems.~~ permittees that have historical WET testing problems.

EPA requests clarification on this statement. Please explain how TCEQ interprets the phrase “historical WET testing problems”. Please provide specific examples of the conditions under which TCEQ has, or would, implement this procedure.

Page 10, Beginning of Section “With a WET Limit”

Permittees will be required to perform quarterly testing when ~~The minimum testing frequency in a permit with a WET limit is added to the permit for at least three years is once per quarter for five years following the effective date of the WET limit.~~

EPA disagrees with the proposal to reduce the effective term of the WET limit, as presented here and again, on page 18 of the proposed IPs.

[OPTION 1:] (for WET REASONABLE POTENTIAL)

Permits that meet the applicability criteria for WET testing will be screened to determine if the discharge has a reasonable potential (RP) to cause lethal or sublethal persistent significant toxicity. Screening for RP is intended to identify potential toxicity that has not yet been addressed by a toxicity reduction evaluation and/or a permit toxicity control measure for WET.

According to EPA regulations at 40 CFR 122.44(d)(1) and as incorporated by reference by TCEQ at TAC §305.531 - Establishing and Calculating Additional Conditions and Limitations for TPDES Permits, the purpose of the WET reasonable potential analysis is to determine, considering test species sensitivity, the variability of the pollutant (WET test results) in the effluent and dilution (where allowed), “whether a discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above a narrative or numeric criteria within a State water quality standard.”

Screening for RP will be based on data from previous sublethal WET testing for existing permits. The focus will be on sublethal rather than on lethal WET because existing permits that have previously demonstrated lethal toxicity are expected to have already initiated lethal TRES or to have a lethal WET limit (or other toxicity control measure) in place. New permits will not be screened for RP, since there will not be data from previous WET testing; therefore potential toxicity for new permits will be assessed by routine, periodic WET testing after new permits are issued.

EPA disagrees. The reasonable potential analysis must be performed on both the lethal and sublethal test endpoints for both test species.

Existing discharges will be screened for RP during permit renewal or amendment. Significant sublethal toxicity will be considered to occur only when sublethal effects were noted at NOECs of 75% or less.

EPA disagrees. Permit writers cannot exclude valid data in developing a permit. The reasonable potential analysis calculation must include all valid test results reported. However, where a limit is based solely on sublethal effects, the current EPA Region 6 WET Permitting Strategy allows the limit to be established at 80% effluent, even if the true effluent critical dilution is between 81% and 100%.

RP for persistent sublethal toxicity will be indicated if the following occurs for any of the tested species:

- Significant sublethality in greater than 50% of the tests performed for either test species, and;
- Significant sublethality in at least two tests over the past two years; and
- Significant sublethality in at least one test in the past year.

EPA disagrees. As previously noted to TCEQ on several occasions, reacting to multiple toxicity events in over half of the tests performed does not constitute an acceptable method of establishing a predictive reasonable potential process for

WET nor does it ensure compliance with the State's narrative standard or criterion for the protection of aquatic life.

If RP for persistent sublethal toxicity is indicated, the permit will require the following provisions:

- Monthly sublethal WET testing over the initial 12 months of the permit; and
Initiation of a sublethal TRE if significant sublethality is confirmed, in accordance with the requirements in the subsequent section on Toxicity Reduction Evaluations.

EPA disagrees. While this process could lead to a sublethal TRE, it does not lead to a limit. As required in EPA regulation 40 CFR §122.44(d)(1)(v), reasonable potential must be assessed during permit development and, if reasonable potential is found to exist, the permit must be issued with a WET limit.

[OPTION 2:] (for WET REASONABLE POTENTIAL)

The need for a toxicity (lethal and sublethal) WET limit is determined using a sequential, tiered process (see the Technical Support Document, Chapter 3). In the first step, historical data (last 5 years) is analyzed to find the maximum effluent concentration for toxicity. An uncertainty multiplier is then applied to this maximum observed effluent concentration to account for effluent variability. In the second step, that derived value is used to assess for in-stream toxicity (compared to the critical dilution). If the projected in-stream concentration is greater than the applicable toxicity criterion (i.e., the critical dilution), then RP exists and toxicity WET limit is included in the re-issued permit, with a compliance period of up to three years, if applicable. In effect, if a permittee has had any lethal or sublethal failures in the past five years ("caused" toxicity), or the statistical analysis determines that one or more tests that weren't failures but were close after effluent variability is accounted for ("reasonable potential" to cause toxicity), then WET limits are required.

This option may be acceptable, but needs clarification. If the process in the TSD, pages 52-54, is followed as it is presented, the method would be acceptable. However, in its May 2005 WET Permitting Strategy EPA Region 6 has made minor revisions to the TSD approach to address concerns with lethal and sublethal toxicity that could be included in this approach. For example:

- **DEFAULT FINDING OF REASONABLE POTENTIAL** - For discharges with a critical dilution of 90% or greater, the TSD approach will, by default, find that reasonable potential exists. To preclude this, where the critical dilution is $\geq 90\%$, and the facility has reported no test failures for lethal or sublethal effects demonstrated in the last five years of quarterly testing, although the actual calculation may find reasonable potential, the default result for the permit (and explained in the permit fact sheet) will be "No reasonable potential – No WET limit - WET monitoring only).
- **MAXIMUM SUBLETHAL LIMIT of 80%** - As noted above, where reasonable potential is found based solely on sublethal effects, a limit on

sublethal effects may be established at 80% effluent, even if the true effluent critical dilution is between 81% and 100%.

- TRE/TIE - Where WET limits are included in the permit, a three year compliance schedule is provided. During this period the permittee may perform any and all TRE/TIE work it feels necessary in order to be in compliance on the compliance date. If the facility performs a TRE during this period and successfully identifies and confirms the toxicant prior to the end of the compliance period, the WET limit may be replaced with a limit on the specific toxicant (if requested by the permittee).
- SMALL DATA SETS - Where reasonable potential exists based solely on a small data set ($n < 10$ and there have been no test failures for either test specie), the permit may allow up to one year to gather additional WET data to expand the data set to the minimum of ten. If, based on the new analysis of all the data, reasonable potential no longer exists and the WET limit will not become effective in the permit.

Page 12, Dilution Series

Some 48-hour acute tests are based on the percentage of effluent at the edge of the zone of initial dilution (ZID).

Before responding to this, EPA requests that TCEQ provide clarification on how this determination is made and under what circumstances it is used.

Page 15, When is a TRE performed?

TREs can be initiated during permit application reviews after a determination of RP, as described above, or when persistent significant toxicity occurs during routine WET testing.

The permit and permitting agency establishes at what point a facility must perform a TRE, however proactive permittees may self-institute a TRE or TIE, full or partial, at any time without agency directive to do so. This is also true of WET testing. However, TCEQ should consider that, based on a finding of reasonable potential, some permittees will receive a permit that will require compliance with toxicity limits three years after issuance.

Page 15, When is a TRE performed?, Paragraph 2

There are two types of TREs - lethal and sublethal. For a lethal TRE (TRE_L), if a permittee fails a WET test, that is, statistically significant lethality occurs to either test species exposed to effluent at or below the critical dilution, the permittee will conduct two retests with that test species. (A retest is another test performed on a sample taken on a different day.) The two retests are to be conducted monthly during the next two consecutive months. If persistent significant lethality is demonstrated by failure of one or both retests, the permittee will perform a TRE_L .

Consistent with TCEQ's replacement of the terms 'lethal' and 'sublethal' with the term 'toxicity' it should also consider referencing TREs for 'toxicity'. By definition, toxicity that kills the test animal significantly impacts the animal's reproductive process. Any TRE for lethal effects should ensure that survival is not the only endpoint being investigated. EPA does not anticipate authorizing a process whereby a sublethal TRE would follow a TRE for lethal effects. The end result of a TRE should be no significant *toxicity*, lethal or sublethal, at its conclusion.

For a sublethal TRE (TRE_S), if a permittee fails a WET test, that is, statistically significant sublethality occurs at the critical dilution, the permittee will conduct three retests with that test species. The retests are to be conducted monthly during the next three consecutive months. If significant sublethality is demonstrated by failure of two or more of the three retests, the permittee will perform a TRE_S. However, for a TRE_S to have a chance to be successful, the toxicity must be of sufficient magnitude. Therefore, no observed effects concentrations (NOECs) 76% or greater will not be considered "failures" when making a TRE_S determination. Note that all test data must be submitted for review regardless of whether the test was valid or invalid.

TCEQ should consider that, based on a finding of reasonable potential during permit development, some permittees will receive a permit that will require compliance with toxicity limits three years after issuance.

While EPA may currently accept the TCEQ threshold of 76% for purposes of implementing a TRE solely for sublethal effects, a combination of lethal and sublethal effects should result in a TRE for toxicity. Failing to require a facility to address significant toxic effects during a permit will almost certainly result in a finding of reasonable potential when the permit is reissued and ongoing toxic discharges in the interim years.

Additionally, EPA notes that the statement "All test data must be submitted for review regardless of whether the test was valid or invalid" has been deleted in this paragraph and at the bottom of this page. Invalid tests can provide information as useful as valid tests. Agency review of invalid test data is important from the perspective of the environment, the public, the permittee the agency and the lab performing the tests. This is especially important since there is no federal licensing or inspection program for toxicity testing labs. Ensuring quality of the data produced is critical to any project and it is the responsibility of the EPA Regions and States to know, for example, the rate of number of invalid test performed by a lab or for a permittee. This kind of information is important in making other decisions as well. EPA strongly suggests that TCEQ reinstate this requirement and diligently review the data submitted.

This section discusses TREs, but does not mention the TIE process. As noted in our comments on the Texas Water Quality Standards, 30 TAC §306.6(e)(2)(D) establishes a requirement that "If toxicity biomonitoring results indicate that a

discharge is exceeding the restrictions on total toxicity in this section, then *the permittee shall conduct a toxicity identification evaluation and toxicity reduction evaluation* in accordance with permitting procedures of the commission.” (emphasis added). If TCEQ wishes to retain the language currently in its standards, the implementation procedures and permitting practices must be revised to address the standard.

Page 16, Final reports

The permit also requires the permittee to complete the TRE and submit a final report within 28 months of the retest(s) that confirms persistent significant lethality, and within 36 months of the retest(s) that confirms persistent significant sublethality. Permittees may request an extension to the 28- or 36- month time limit. The extension, however, must be warranted, and approval is contingent upon permittees demonstrating (1) due diligence in pursuit of the TRE and (2) the existence of circumstances beyond their ability to control.

EPA has no information indicating that most TREs routinely require a duration in excess of 28 months regardless of the endpoint being evaluated. While we do not disagree that some sublethal TREs may require additional time, this has also been true of a few lethal TREs. However this may be addressed in cases of demonstrated need after aggressively pursuing the 28 month-TRE by providing an extension, as the implementation procedures already provide. EPA sees no need to further prolong toxic discharges and requests TCEQ provide data that demonstrates the need for a routine 36-month TRE to address sublethal effects.

Page 17, Ceasing a TRE

Permittees may cease TRE activities if they demonstrate to the executive director that the effluent no longer causes toxicity to the test organisms. Cessation of toxicity for a TRE_L is here defined as no significant lethality at the critical dilution, using test procedures specified in the permit, for a period of 12 consecutive tests within 24 months. This permit language accommodates situations where operational errors and upsets, spills, or sampling errors triggered the TRE, in contrast to a situation where a single toxicant or group of toxicants cause lethality. Cessation of sublethality for a TRE_S is determined using BPJ, when insufficient magnitude and duration of toxicity renders the TRE ineffective.

EPA disagrees with the premise that a TRE be discontinued based on the cessation of lethality. If the TRE has not been completed during the designated compliance period the WET limit must go into effect. There is no environmental benefit for the facility to discontinue a TRE. Operational errors, upsets, spills or sampling error might result in a single test failure, but should not be cause for failures in two or three tests over a period of months. That type cause for a test failure is the reason for requiring multiple retests and failures prior to instituting a TRE to begin with. TCEQ has never required a sublethal TRE and thus cannot rely on its experience to make a best professional judgment assessment determination regarding performance in a sublethal TRE or when one should be terminated early.

The permittee may only apply the cessation of toxicity provision once every five years. If the effluent again demonstrates persistent, significant lethality to the same species within a five-year period, the TCEQ will amend the permit to add a WET limit for toxicity (lethal and sublethal effects) with a compliance period (if appropriate). If the permittee can identify and confirm the toxicant and/or identify an appropriate control measure, the permittee may apply for a permit amendment before the effective date of the WET limit, removing the WET limit and replacing it with an alternate toxicity control measure.

If the effluent again demonstrates persistent, significant sublethality to the same species within a five-year period, the permittee will initiate another TRE_S.

EPA disagrees. If a future test failure occurs, the permit must be amended in a timely manner to add a WET limit for toxicity. The situation is no longer one of predicting reasonable potential; multiple test failures (lethal and or sublethal) are multiple exceedances of the site specific numeric interpretation of the State water quality standard criterion for the protection of aquatic life. While TREs and TIES are useful tools to assist permittees become compliant with the water quality standards, they are not supposed to simply prolong the period before compliance.

Page 18, BMP (Best Management Practice)

The TCEQ may specify a permit requirement for a BMP if such a provision can adequately address toxicity. In terms of WET testing, BMPs are defined as a practice or combination of practices that remove toxicity from the effluent by eliminating the source of toxicity. If successful, the BMP becomes an enforceable part of the permit. A BMP does not include making housekeeping changes or operational changes to reduce toxicity. In these cases, the source of toxicity still remains.

Federal regulations restrict the use of BMPs, which may be allowed only where a traditional permit limit is impracticable. EPA does not argue that situations such as the discontinued use of a particular compound or barring certain dischargers from using a POTW provide an appropriate basis for using a BMP. However, WET limits are generally not impracticable and the permittee should take the appropriate local action that allows them to comply with the WET limit.

Page 18, Lethal WET Limit

Upon reaching the effective date of the WET limit, a testing frequency of once per quarter is required for the next three years for the species to which the WET limit applies.

and,

After three years of compliance with a WET limit (no demonstrations of significant toxicity), the permittee may request, through a major amendment, to have the WET limit removed from the permit and resume routine WET testing.

EPA considers removal of permit limits a matter of significant concern, such that it has developed anti-backsliding regulations to ensure limits are not removed in an arbitrary manner. If TCEQ wishes EPA to consider a three – year term for

permit limits, we request TCEQ provide the criteria it uses for doing so, including the minimum period of time, amount of data and the variability associated with the data analyzed required to remove a limit from a TCEQ permit.. In addition, please provide the references in the current water quality standards and implementation procedures which address the removal of permit limits for WET or any other parameter.

Page 18, Sublethal WET Limit

This is the first mention in the proposed IPs of a potential WET limit based on sublethal effects. EPA's comments directly above regarding the preceding section (Lethal WET Limit) apply equally to this section.

Page 19, Sublethal WET Limit (continued)

However, if the permittee demonstrates significant sublethality at the critical dilution and fails in two of the three next tests during the increased monthly testing period, the permittee will be referred to TCEQ's Enforcement Division for formal enforcement action. This process is illustrated in Figure 93 on page 21.

EPA regulations and the Texas water quality standards provide for equal status and protection against both lethal and sublethal toxic effects. A WET limit violation for sublethal effects is no less significant than one for lethal effects, therefore it is inappropriate to require three (sublethal) WET limit violations to trigger a formal enforcement action when the same action is triggered by two (lethal) WET limit violations. Two violations of WET limits, regardless of lethal, sublethal or combined should trigger a formal enforcement action. Note also that the Figure on page 21 requires mandatory enforcement after two test failures (WET limit violations), not three, and it does not specify either lethal or sublethal effects, it refers only to "test failures".

Minimum Analytical Levels

EPA notes that TCEQ is moving forward with the revisions and implementation of Minimum Analytical Levels (MALs) for permit Application Screening based on EPA Region 6 letter dated October 2007. Comments below are related to Table B-4 (Minimum Analytical Levels and Suggested Methods for Permit Application Screening) and Table B-5 (Analytical Methods for the Determination of Pollution Regulated by section 307.6 of the Standards).

- EPA lists the MAL for Endosulfan sulfate as 0.02. However, TCEQ lists the MAL as 0.1. We recommend TCEQ's further review.
- For Antimony, Table B-4 lists the MAL as 1.5. However, Table B-5 lists the MAL as 5. Please review the list for consistency.
- EPA lists the MAL for chlorine as 33. TCEQ does not list a MAL for Chlorine.



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MAR 09 2008

Ms. L'Oreal Stepney, Director
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Austin, TX 78711-3087

Dear Ms. Stepney:

The Environmental Protection Agency (EPA) appreciates the opportunity to provide recommendations on the upcoming revision of the document titled, *Procedures to Implement the Texas Surface Water Quality Standards*. Our comments are enclosed and include several items that were not resolved in the current version. EPA provided recommendations for the revision of the *Texas Surface Water Quality Standards* in December 2005.

We look forward to continuing work with you and your staff on the protection of water resources. If you have any questions, please contact Jane at (214) 665-7135, Claudia at (214) 665-6464 or staff in the NPDES Permits Branch or Ecosystems Protection Branch

Sincerely,


for Jane B. Watson, Ph.D.
Chief

Ecosystems Protection Branch (6WQ-E)


Claudia Hosch
Chief
NPDES Permits Branch (6WQ-P)

cc: Sidne Tiemann, TCEQ - Water Quality Assessment Section (MC-150)

**EPA recommendations for revisions to
*Procedures to Implement the Texas Surface Water Quality Standards***

General Comment

The proposed revisions include a number of instances where case-by-case decisions will be made. The Environmental Protection Agency (EPA) recognizes the need for flexibility in regulatory permitting decisions and has no objection to the State establishing implementation on a case-by-case basis where there are special conditions or circumstances. However, since permit conditions in State-administered National Pollutant Discharge Elimination System (NPDES) programs must adhere to both state water quality standards and the Clean Water Act (CWA), EPA believes it is important to include a general statement in the Implementation Procedures clearly establishing that case-by-case permitting decisions are subject to EPA approval (e.g., Page 44, Deriving Permit Limits for Human Health Protection; Page 52, Once-Through Cooling Water Discharges; Page 62, Alternate Analytical Test Methods; Page 66, Screening Procedures and Permit Limits for Total Dissolved Solids; Page 77, (WET) Test Frequency; Page 91, TDS Toxicity in Chronic and 48-Hour Acute Tests; Page 91, Toxicity Attributable to Ammonia).

Determining Water Quality Uses and Criteria

Page 3, Unclassified Waters. EPA recommends revising the second sentence under “Perennial Waters” as follows: “In accordance with results from statewide ecoregion studies, the critical low flow in unclassified perennial streams in the eastern and southern portions of Texas (shown as area “A” on Figure 1, page 6) may be modified ~~are assigned dissolved oxygen criteria~~ as described in 30 TAC §307.7(b)(3)(A)(ii)” and in the section of this document entitled “Eastern and Southern Portions of the State” on page 10. The caption for figure 1 should also be modified.

Where a discharge creates a perennial flow in an intermittent stream, the reach below the discharges should be assumed to have an aquatic life use and protected at the appropriate level for conventional and toxic pollutants. The federal regulation at 40 CFR §131.10(g)(2) for designation of uses states “natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges without violation of State water conservation requirements to enable uses to be met.” EPA recommends that the additional language be included in the Implementation Procedures to address this issue.

Antidegradation

Page 26, General Provisions (last paragraph); page 27, Applicability to Specific Parameters “Listings based on narrative standards”; and, page 28, Procedures for Discharges to Listed Water Bodies (first paragraph). These provisions include language that is inconsistent with the federal regulations cited at 40 CFR §122.44(d) and 40.CFR §131.12. Limitations must control

all pollutants that may be discharged at levels that will cause or contribute to an exceedance of a state water quality standard. In addition, the antidegradation policy must be implemented so that the quality of waters necessary to support designated and presumed uses are maintained. Therefore, in these cases, controls (i.e., permit limitations) to prevent additional loadings from new and existing dischargers are required if the listed pollutant is present in the effluent.

Mixing Zones and Critical Conditions

Pages 40-43, Critical Conditions for Aquatic Life Protection. As discussed above, where an effluent discharge creates a perennial flow, the reach below the discharges should be assumed to have an aquatic life use.

Toxic Pollutants

Pages 51-85. We recommend that TCEQ consider the development of policy and procedures related to implementation of bioaccumulative pollutants which may accumulate in bottom sediments and fish tissue. This is particularly important since existing human health criteria are derived using bioconcentration factors rather than bioaccumulation factors.

Pages 62-67, Establishing Permit Limits for Toxic Pollutants without Criteria. When calculating permit limits for toxic pollutants without criteria, the state should screen the reported value against both the MAL (if available) and a screening value (to protect aquatic life, human health or both) in order to evaluate the water quality significance. If the reported value can be quantitatively supported (i.e., the methodology was appropriate to arrive at a definitive value below the "default MAL"), monitoring and permit limits should be considered.

Pages 67-70, Correcting for Background Concentrations. We recommend including sources of background data in this section. Permit writers should evaluate readily available sources of ambient data, such as TCEQ's Surface Water Quality Monitoring database, to determine if background data for appropriate parameters are available for permit development.

Whole Effluent Toxicity Testing (Biomonitoring)

As proposed by EPA Region 6 in several letters and meetings during 2005, EPA believes it is necessary for TCEQ to revise its whole effluent toxicity (WET) permitting procedures. This will require that TCEQ modify its implementation procedures to ensure full compliance with federal regulations at 40 CFR §122.44(d)(1) with respect to developing a predictive reasonable potential process for WET limits and to begin incorporating WET limits for sub-lethal effects (such as growth and/or reproduction). EPA expects TCEQ permits to be issued with the required changes by January 2007. EPA is working on updates to the various WET language templates and these will be provided for TCEQ's review and comment in the near future. Since the TCEQ water quality standards already provide for protection of aquatic life at the sub-lethal effects, the implementation procedures should be revised with respect to WET limits for sub-lethal effects.

Pages 101-102, Applicability. EPA recommends that TPDES permits for minor dischargers include WET testing (and limits as appropriate) where: 1) reasonable potential for instream toxicity exists due to the discharge of potentially toxic levels of chlorine, ammonia, or other toxic compounds, and, 2) the facility discharges directly to a receiving stream designated as critical habitat for, or is known to support an aquatic species listed as threatened or endangered.

Regarding chlorine discharges from minor facilities, TPDES permits for minor privately-owned treatment works (POTW) discharge facilities often include a requirement that the facility maintain a total chlorine residual of 1- 4 mg/l prior to final discharge. Minor POTWs that discharge these levels of residual chlorine to receiving waters without significant dilution constitute a serious potential for instream toxicity. EPA regulations do not exclude minor discharges from toxicity requirements. EPA and TCEQ have addressed potential toxicity from minor discharges, so a precedent exists to support modifications to the Implementation Procedures.

EPA's Post Third-Round NPDES Permitting Strategy prioritizes permit issuance and limits with the first priority being facilities with known or suspected toxicity problems. Chlorine is specifically mentioned in the following excerpt:

Chlorine: Permits for facilities with the potential for a continuous discharge of chlorine will include water quality-based effluent limits for Total Residual Chlorine. Water quality-based limits will be derived from the state water quality standards giving consideration to appropriate dilution factors, state implementation procedures or federal criteria if no state standard has been approved.

TCEQ should revise the Implementation Procedures and permitting practices to include either WET testing or dechlorination requirements and total residual chlorine limits for those minor POTW (< 1.0 MGD design flow) facilities which may pose a toxic threat based on available dilution. We believe that a basis for this modification already exists on page 101 in the Implementation Procedures in the following bullets for domestic discharges:

The [TCEQ] requires WET testing of domestic wastewater dischargers that have **any** of the following conditions:

- an average permitted flow of 1 MGD or greater
- a final phase of their permit with a design flow of 1 MGD or greater
- an approved pretreatment program with significant industrial users discharging into their collection systems
- **the potential to cause toxicity in the receiving water.** [emphasis added]

Pages 105-107, WET Testing Frequencies. This section should be clarified to reflect that the minimum WET monitoring frequency starts out at once per quarter for each new permit cycle (i.e., every fifth year). It should also be clarified to reflect that the frequency reduction does not apply to facilities which were previously monitoring for the life of the permit at a frequency of once per quarter.

Page 111, Toxicity Reduction Evaluations (TREs). This section should be revised to clarify the process by which a sub-lethal TRE and limits will be required. An approach similar to that used for lethality effects would be appropriate.

Pages 113-114, Toxicity Control Measures. This section should be revised to explain how TCEQ will assess reasonable potential for WET limits for lethal and sub-lethal effects in a manner that meets all applicable state and federal requirements. The state's current practice for establishing WET limits does not meet the requirements of the CWA or federal regulations at 40 CFR §122.44(d)(1)(ii) and (iv). The regulation is specific in requiring a reasonable potential determination during permit development and including WET limits where reasonable potential exists. The discharge of toxics in toxic amounts is to be controlled to preclude instream toxicity, that is, permit limits must be placed in NPDES permits to ensure toxic discharges which may impact aquatic life do not occur. The current WET permitting procedures allow multiple toxic events to occur before a multi-year toxicity study is performed, followed by a compliance schedule of, usually, three years, before a permit limit becomes effective. To allow permittees time to become familiarized with WET and toxicity studies, EPA Region 6 followed this practice when it first began implementing WET requirements in permits. However this practice does not comply with the permitting regulations, and Region 6 can no longer support its use. Region 6 has developed and is using a predictive reasonable potential determination procedure that it believes meets the minimum federal requirements. TCEQ may use this procedure or develop an equivalent one for EPA's review.

Pages 113-114, Toxicity Control Measures (Chronic and 48-Hour Acute). Please note that federal regulations at 40 CFR §122.44.d.1(v) require the permitting authority to demonstrate in the permit fact sheet that the chemical-specific (CS) limit or best management practice (BMP) is adequate to prevent toxicity before it can be substituted for a WET limit. Where a CS or BMP is substituted for a WET limit, the WET testing frequency must be adequate to ensure that the alternate limit is working.

Page 125, Toxicity Attributable to Diazinon. Under item 2, TCEQ should clarify that effluent monitoring for Diazinon must be performed concurrently with WET testing to ensure that data collected is meaningful. In the last paragraph, TCEQ must clarify that if sub-lethal or lethal toxicity persists, the permittee will resume the TRE. TCEQ may also want to include a discussion regarding the use of piperonyl butoxide (PBO) to neutralize Diazinon toxicity when an additional toxicant is suspected. (Also see comment below for Table 9)

TPDES Storm Water Permits

Page 130, Discharges to Impaired Waters. Under "Constituents of Concern," language in the first paragraph must be revised to read "...TMDL or TMDL implementation plan is only eligible..." to ensure compliance with federal regulations and to ensure that permits for reissuance or major amendments for existing dischargers include TMDL requirements. If a

TMDL has been approved by EPA, permits must be issued in accordance with the TMDL, regardless of whether a separate implementation plan will be developed. Permits must establish controls where the discharge of pollutants have the reasonable potential to cause or contribute to the impairment of the water body. In addition, permits must also establish conditions to ensure consistency with the requirements of an approved water quality management plan approved by EPA, as cited in 40 CFR §122.44(d)(6).

Site-Specific Standards and Variances

Page 135, Coordinating with EPA. The provision states that EPA will confer with the U.S. Fish and Wildlife Service. It is not clear if this term refers to the review of the permit, the variance or both items. Although EPA coordinates with the Services on draft TPDES permits, consultation under §7 of the Endangered Species Act is still required on revisions to water quality standards where there may be an effect on federally listed species. It may not be possible to complete ESA consultation on the variance within the 45-day review period of the draft permit. A determination of “approvable” can usually be made within 45 days. Also, the public comment period on the TPDES permit must be completed before EPA approves a variance to the water quality standards.

Page 136, Temporary Standards and page 139, UAAs for Typical Sites. The provisions for Temporary Standards and UAAs are acceptable; however, an important part from 40 CFR §131.10(g) has not been included in the bullets for “natural, ephemeral or low-flow conditions or water levels prevent the attainment of the use.” The federal regulation includes the above language plus the following “unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges without violation of State water conservation requirements to enable uses to be met.” EPA recommends that the additional language be included in the Implementation Procedures and will consider this factor in review of temporary standards and UAAs.

Pages 143-144, Site-specific Numeric Standards for Aquatic Life (Bioavailability of specific toxic substances of concern, as determined by water-effect ratio tests or other analyses approved by the agency). TCEQ may wish to include some of the recent policy decisions such as use of the streamlined method for saltwater WERs and use of 48-hour tests with *Americamysis bahia* with copper nitrate as the spiking solution

Page 146, Site-Specific Standards for Total Toxicity (Indigenous aquatic organisms that may have different responses to particular toxic materials). It would be useful to cite the updated procedures for recalculating aquatic life criteria found in Appendix B of EPA’s guidance document, *Interim Guidance on Determination and Use of Water-Effect Ratios for Metals*, EPA-823-B-94-001, 1994.

Appendix C

Table 3 - Locations of Federally Endangered and Threatened Aquatic and Aquatic-Dependent Species in Texas.

One of TCEQ's response comments on an earlier version of the Implementation Procedures stated that Table 3 represented only the critical concern species/watersheds plus the piping plover. The Implementation Procedures should acknowledge this limitation and that other aquatic and aquatic-dependant species are found in Texas. If Table 3 is based on the *Hydrologic Database for Federally-Listed and Candidate Species* in Texas, several inland water bodies where the interior least tern, the piping plover or the whooping crane have found should be added. These include the water bodies in the following segments: 0201, 0202, 0203, 0204, 0205, 0206, 0207, 0214, 0804 and 0805.

The 2005 "Hydrologic database" includes several unclassified water bodies in segments 1427 and 1430 for the Barton Springs salamander. Also, "Toyah Creek" (segment 2311) should be included in Reeves County for the Pecos Gambusia. The interior least tern may be associated with water bodies in segments 2303, 2304, and 2305. For the Devils River minnow, the "Hydrologic database" also lists Pinto Creek and Pinto Springs in segment 2304 and the following unclassified water bodies in segment 2309: Dolan Creek, Dolan Spring, Finegan Spring, Pecan Spring, and Phillips Creek. Toyah Creek in segment 2311 is listed for the Pecos Gambusia. The Pecos assiminea snail was listed as endangered in August 2005 and critical habitat has been designated in Diamond Y draw and East Sandia spring in segment 2311.

Table 8 - Minimum Analytical Levels for Permit Application Screening and Table 9 - Analytical Methods for the Determination of Pollutants Regulated by 30 TAC §307.6.

EPA Headquarters and Region 6 are nearing completion of an updated list of Minimum Quantification Limits (MQLs). Clean techniques for mercury and other metals (method 1600 series), pesticides, and volatile and semivolatile organics are included to replace less sensitive methods. We recommend including the revised MQLs in both Tables 8 and 9 and will provide this document under separate cover as soon as it is available.

TCEQ must either revise Table 8 and Table 9 to incorporate EPA method 614 (MAL, 0.1 ug/l; MDL, 0.012 ug/l) or include this method on page 125, Toxicity Attributable to Diazinon.