TEXAS ASSOCIATION OF CLEAN WATER AGENCIES

COMMENTS ON PROPOSED REVISIONS
PROCEDURES TO IMPLEMENT
THE TEXAS SURFACE WATER QUALITY STANDARDS

January 2009

Following are comments and recommendations provided by the Texas Association of Clean Water Agencies (TACWA) regarding proposed revisions to Procedures to Implement the Texas Surface Water Quality Standards (IPs). The comments pertain to the IPs that were discussed at the January 7, 2009, meeting of the Texas Commission on Environmental Quality (TCEQ) Surface Water Quality Standards Advisory Workgroup.

DETERMINING WATER QUALITY USES AND CRITERIA, UNCLASSIFIED WATERS PAGES 3 AND 4

This section states, "In the absence of site-specific information, criteria for dissolved minerals, pH, and temperature are considered to be the same as those for the designated segment in whose watershed the water body is located." A note states that the paragraph in which this statement appears is in the existing IPs and has been relocated to here from elsewhere. However, the quoted sentence is not in the relocated paragraph.

This sentence has the effect of establishing water quality standards for unclassified waters that are the same as the standards applicable to the classified waters to which they are tributary. This is inconsistent with 30 TAC Chapter 307 (Ch 307).

At the present time, and in other sections of the IPs, the criterion for downstream classified waters is sometimes one of the factors considered when evaluating proposed discharges to unclassified waters. However, it is not the only factor; and, in fact, for some cases when evaluating the total dissolved solids (TDS) concentrations in discharges to intermittent streams, it is not the primary consideration.

Recommendation: Delete the last sentence of the second paragraph under "Unclassified Waters." This topic is covered more accurately elsewhere in the IPs.

SEAGRASSES, PAGES 17 AND 18

This entire section is a concern to TACWA. It creates a requirement to evaluate, in detail, every discharge into any of the 22 Bay and Estuary segments proposed for designation for seagrass propagation use, as well as tributaries to those segments. Factors to be evaluated are identified, but no guidance is provided on how to evaluate the factors. Additional details regarding why this section is a concern are provided in the TACWA comments on Ch 307.

If these provisions are adopted (and the associated changes to Ch 307, which are discussed in the enclosed comments on Ch 307), TCEQ will be required to evaluate many more permits for impacts to seagrasses. In most cases, neither the data nor technical knowledge will be available to make a scientifically defensible finding regarding either the potential for adverse impacts or the effectiveness of proposed controls.

Recommendation: Delete the draft section of IPs that addresses seagrasses; and implement a study, with stakeholder involvement, to develop protocols for evaluating the potential for impairment of seagrass beds and establishing appropriate permit provisions, as discussed in the comments on Ch 307.

NUTRIENTS

TACWA supports some of the proposed IPs for the nutrient criteria. Other proposals are a concern.

The application of technology-based nutrient limits, when limits are determined to be appropriate, is a sound approach. Taking into consideration the size of the wastewater treatment plant (WWTP) when establishing permit limits is also a desirable approach.

However, in general, the proposed IPs for determining whether permits should have nutrient limits are a concern. They are based heavily on phosphorus concentrations rather than chlorophyll concentrations and are extremely conservative.

Comments on specific aspects of the proposed IPs for nutrient criteria follow.

Opportunity for Stakeholder Participation

TCEQ provided significant opportunities for stakeholder participation during the development of the nutrient criteria being proposed in Ch 307. As a result, there is widespread support for those criteria.

The IPs, however, were available for stakeholder review for the first time when the handouts for the January 7, 2009, meeting were posted. The IPs differ greatly from the criteria. The proposed IPs may result in many permits being revised to include nutrient limits without sufficient prior scientific evaluations to confirm that chlorophyll standards will be exceeded in the absence of permit limits.

Recommendation: Reconvene the TCEQ Nutrient Criteria Workgroup to provide an opportunity for meaningful stakeholder input on the IPs.

General Approach, Applicability, Page 18

This section proposes that only domestic dischargers be screened to determine if nutrient permit limits are required. While not all industrial dischargers will contain significant concentrations of phosphorus or nitrogen that warrant consideration for possible permit limits, some of them will. These industrial discharges should be screened, also.

Recommendation: Amend the first sentence of this paragraph as follows:

> *"Applications for new permits or amended permits for increased flow for domestic discharges, and for those industrial discharges with the potential to contain significant amounts of phosphorus and/or nitrogen, are evaluated to determine if an effluent limit is needed . . ."*

Effluent Limits for Total Phosphorus, Page 19

Given the current state of knowledge regarding treatment technology to reduce the concentrations of Total Phosphorus (TP) in effluent, establishing technology-based permit limits is appropriate – TACWA supports this approach. The limits proposed are achievable based on currently available treatment technology.

However, consistently maintaining the more stringent effluent limits may be challenging for the smaller systems. Consideration should be given to changing the typical sizes of facilities associated with the proposed permit limits.

Recommendation: Increase the sizes of the WWTPs that will typically be required to achieve the more stringent effluent limits as follows:

Permitted Flow (MGD)	**Typical TP Limit (mg/L)**
<1.0	1.0
1.0 to 5.0	1.0 to 0.5
>5.0	0.5

Reservoir Water Clarity, Page 23

The total suspended solids (TSS) concentrations proposed for screening reservoirs for the potential for nutrient impacts in relation to water clarity appear reasonable based on data collected during the study conducted by the Texas Water Conservation Association and supported by TACWA and the National Association of Clean Water Agencies titled, Development of Use-Based Chlorophyll Criteria for Recreational Uses of Reservoirs, (June 2005). These values are supported.

Recommendation: No changes proposed.

Chlorophyll-*a*/Total Phosphorus Ratio as a Measure of Sensitivity to Nutrient Enrichment, Page 23

This proposed ratio is not a good predictor of sensitivity to nutrient enrichment. For example, reservoirs that currently have low TP loadings and low chlorophyll concentrations will be classified as having low sensitivity when, in fact, these may be some of the most sensitive reservoirs. Following are sample calculations for selected reservoirs using the geometric mean concentrations (which should approximate the long-term median concentrations) for chlorophyll-*a* and TP summarized in Table F-1.

Reservoir	Chlorophyll-*a*: TP	Sensitivity Classification
Lake Livingston	0.11	Low
Cedar Creek Reservoir	0.28	High
Lake Travis	0.17	Moderate
International Amistad Reservoir	0.10	Low

These classifications are not consistent with the expected sensitivity of these reservoirs. For example, high-clarity lakes with low nutrient loads in inflows, such as Lake Travis and International Amistad Reservoir, are expected to have high sensitivity.

Recommendation: Delete the ratio of chlorophyll-*a*:TP as a screening tool.

Screening Based on TP Rather Than Chlorophyll, Pages 26 – 29

Several of the proposed screening criteria for determining if permit limits for nutrients are appropriate are based on estimated changes in TP rather than chlorophyll-*a*. This is inappropriate because (1) the standard applies to chlorophyll-*a* and not TP; and (2) in the absence of a site-specific, calibrated model, it is not possible to reliably estimate resultant chlorophyll-*a* concentrations.

Recommendation: Do not base permit decisions on estimates of changes in TP.

Impact of Phosphorus on Main Pool of a Reservoir Without Standards, Page 25 and 26

This screening criterion is based on the estimated change in the TP concentration in the main body of a reservoir that is attributable to a permitted discharge. The change in TP concentration proposed as a High level of concern is very conservative. In fact, it is questionable how many reservoir tributary streams, even those that are not affected by permitted discharges, exhibit these low concentrations.

The potential impact on permits of this proposed screening approach was evaluated by applying the screening method to several reservoirs for discharges varying in size from

1.0 MGD to 20 MGD. Classified reservoirs were used for this evaluation since data on lake surface area, capacity, and retention time are available in Table F-2 in the IPs. The results of the evaluation are presented in Table 1, Column 12. As demonstrated in Table 1, based on the TCEQ-proposed calculations, even a discharge as small as 1.0 MGD to a moderately large reservoir will be predicted to increase TP concentrations in the main pool by significantly more than 0.001 mg/L and, therefore, have a "High concern" for nutrient impacts. This is an overly conservative conclusion.

One concern with this proposed screening criterion is that it does not take into consideration the current trophic status of the reservoir. Reservoirs with significant existing TP loads are relatively insensitive to increases in loading because algal growth is near the maximum that can be achieved in the reservoir. Factors such as self-shading can limit algal growth.

Recommendation: Delete the predicted change in the TP concentration in the main pool of the reservoir as a screening criterion.

Screening Model, Pages 26 – 29

The IPs propose to use steady-state, complete-mix models to evaluate changes in the main body of the reservoir that are attributable to a proposed discharge. The option of using a more sophisticated model, which could provide a more appropriate assessment, is not identified.

Recommendation: Clarify that a more sophisticated model than a steady-state, complete-mix model will be used in permitting decisions, when such models are available.

Screening Based on Percent of Assimilative Capacity Utilized by a Proposed Discharge, Pages 28 and 29

One of the proposed screening criteria relies on the following calculation of assimilative capacity:

TP(screening level) – TP (ambient) = Assimilative Capacity

This screening criterion is a concern:

- It is questionable whether the proposed calculation bears any relationship to the true assimilative capacity of a reservoir.
  - The screening is based on TP, and there is not a linear relationship between TP and chlorophyll except, perhaps, in reservoirs that currently received extremely low loads of TP. Very few; if any, reservoirs in Texas are in this category.
  - The screening levels and ambient concentrations for a specific reservoir are calculated using the same historic database. Only the statistical analyses applied to the database are different. This approach may be particularly restrictive for reservoirs that exhibit small variations in historical concentrations of TP.
- The criterion is extremely restrictive. Table 1, Column 15, shows the calculated percent of assimilative capacity that would be used by discharges of various sizes, based on the proposed calculation and the screening levels and ambient concentrations summarized in Table F-1. As shown in Table 1, in most cases, based on this criterion even a 1.0 MGD discharge will be required to implement controls for TP.

Recommendation: Do not use the proposed equation to estimate the assimilative capacity of a reservoir for a nutrient discharge.

Evaluation Distances for Discharges to Tributaries to Reservoirs With and Without Numeric Nutrient Criteria and Discharges to Streams, Pages 21, 26, 29, and 30

The evaluation distances proposed for nutrients seem excessive. Impact distances for dissolved oxygen (DO), determined by water quality models, are set forth in the IPs in Table 2 on page 6. These distances are much shorter than the distances proposed for screening for nutrient impacts. TP and TN are subject to assimilation and removal from the system, as are oxygen-demanding substances. Since the degradation rates for nutrients are somewhat similar to those for oxygen-demanding substances, it is not clear why the differences are as great as indicated by the IPs. It is also not clear why the evaluation distances for discharges to tributaries to reservoirs with numeric criteria are shorter than the evaluation distances for discharges to reservoirs without numeric criteria. A comparison follows:

	Estimated Impact Distance (miles)			
		Nutrients		
Permitted Flow (MGD)	Oxygen-Demanding Substances in Streams	Tributaries to Reservoirs With Numeric Criteria	Tributaries to Reservoirs Without Numeric Criteria	Streams
<0.25	1.0[(1)]	5	5	3
0.25 to <1.0	2.0[(2)]	5	10	7
≥1.0	2.7[(3)] to 15.3[(4)]	10 – 20[(5)]	20	15

(1)Applies to ≤ 0.20
(2)Applies to ≤1.0
(3)Applies to >1.0
(4)40 MGD discharge
(5)≥ 3 MGD discharge

Recommendation: The bases for the proposed nutrient evaluation distances for nutrients should be provided for review and comment.

Use of Statewide Regression Equation to Relate Chlorophyll-*a* and TP, Page 29

TACWA supports the use of projected changes in chlorophyll-*a* concentration as a basis for requiring nutrient limits in permits. However, the use of the proposed statewide regression equation to predict chlorophyll-*a* concentrations is not supported.

The ability of this equation to predict chlorophyll-*a* concentrations in a specific reservoir is questionable. The equation has been applied to several reservoirs using the average TP and median TSS values in Table F-1. The resultant predicted chlorophyll-*a* concentration for each reservoir was compared to the mean measured chlorophyll-*a* value for that reservoir, as shown in Table F-1. The results are presented in Table 2 of this document. As shown in Table 2, all of the calculated chlorophyll-*a* concentrations are several times (2X – 13X) higher than the measured values.

One problem with the statewide regression equation may be that the equation does not take into consideration the rate of removal or assimilation of TP in reservoirs. The controlling factor in algal growth with respect to TP in reservoirs is TP in inflows, not TP in the water column.

Recommendation: Do not use the statewide regression equation to predict chlorophyll-*a* concentration.

Total Suspended Solids as a Nutrient Screening Criterion for Streams, Page 32

Using statistical data defining the typical range of total suspended solids (TSS) concentrations in streams in Texas does not seem to be a valid basis for screening for nutrient impacts. If TSS is to be used to predict the potential for nutrients to impact streams, it would be more appropriate to base TSS screening values on the extent of light penetration, perhaps as a function of the depth of the stream.

Recommendation: Develop TSS screening criteria for streams based on correlations between TSS and light penetration.

Screening Based on Aquatic Vegetation in Streams, Page 32

It is questionable whether this screening criterion is predictive. Streams may have "little attached, floating, or suspended aquatic vegetation" because existing nutrient concentrations are very low. A stream with these characteristics may be, in fact, highly sensitive to small increases in nutrient concentrations. Conversely, streams with "heavy patches of vegetation in areas with nutrient input" may not be affected by nutrient input because other factors are limiting growth.

Recommendation: Delete the screening criterion based on observed aquatic vegetation.

WHOLE EFFLUENT TOXICITY

TACWA commends TCEQ for its diligent efforts and commitment to developing provisions for the control of Whole Effluent Toxicity (WET) that are consistent with the significance, sensitivity, and variability of the test. The proposed IPs for WET are a substantial improvement over the concepts being urged by the U.S. Environmental Protection Agency (EPA). However, TACWA would like to propose additional improvements in some areas. Following are statements of support for specific provisions and recommendations for revisions to some sections.

Split Samples

A protocol is needed regarding how to treat the results of split-sample-testing when the test results disagree. This determination is relevant to the Reasonable Potential (RP) determination, TRE initiation, and determination of permit compliance.

EPA has recommended that the results of split samples be reported as an average. TACWA does not support this approach. The average is of questionable scientific validity when the endpoint is NOEC. If the critical dilution is 100% (or close) and one laboratory reports a failure, the average will indicate that the test is a failure regardless of how many other laboratories report a pass. Further, the NOEC average value is constrained by the effluent dilutions that have been analyzed. The true NOEC value could be substantially different.

Recommendation: Split-sample tests that have conflicting conclusions regarding test pass or fail should be considered invalid, and the test should be re-run.

Use of Percent Effect as a Test Endpoint

There are a number of limitations associated with the use of the No Observed Effect Concentration (NOEC) as a test endpoint that are not present with a Percent Effect (PE) endpoint:

- With an NOEC endpoint, a test conclusion can be controlled by an anomalous result for one set of the effluent dilutions in the test. A PE endpoint is based on a best-fit line and integrates the results of all of the test data.
- In tests without a well-defined dose-response curve, determining the NOEC endpoint can be highly subjective. The PE endpoint requires substantially less subjectivity.
- If TCEQ is going to require permittees to conduct Toxicity Reduction Evaluations (TREs) for sublethal effects, PE is a much better determinant of

the practicality of conducting a successful TRE than NOEC. To have a reasonable possibility of being successful in a sublethal TRE, there needs to be at least a 40-50% reduction in reproduction in 100% effluent compared to reproduction in the control. Frequently, tests of municipal effluent that exhibit sublethal, but not lethal, failures have very flat dose-response curves so that none of the effluent concentrations tested have a 40% reduction in reproduction. Specifying that TRE studies should be conducted on effluents with an NOEC of 76% does not address the fact that these effluents frequently do not have a 40% reduction in 100% effluent.

- The results based on PE are logical in that higher values indicate greater toxicity.

Recommendation: EPA has approved a PE-type of approach in South Carolina. Therefore, it has been deemed to be consistent with available guidance and regulations. TCEQ is encouraged to adopt a similar approach.

If PE endpoints are not adopted, the following concepts are strongly urged:

- Test endpoints should be based on the 25% Inhibition Concentration (IC_{25}) point estimation technique rather than NOEC. It is noted that the method manual for toxicity testing[1] states in bold in Section 9.5.1, "For the NPDES Permit Program, the point estimation techniques are the preferred statistical methods in calculating endpoints for effluent toxicity tests."

- The section on TREs specifies that sublethal effects with an NOEC of 76% or greater will not be considered failures with respect to requiring a TRE. It is recommended that this section be changed to (1) require a 100% effluent sample to be run as part of the retests, and (2) specify that a TRE is required only if 2 of the 3 retests exhibit a 40% or greater effect in the 100% effluent sample.

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[1]Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms. Fourth Ed. (EPA-821-R-02-013), October 2002, U.S. Environmental Protection Agency.

- Similarly, for permit compliance purposes, sublethal tests with less than 40% reduction in reproduction in the highest effluent concentration tested should not be considered test failures.

Applicability, Domestic Dischargers, Page 79

The IPs provide that WET testing is required of any domestic wastewater discharger that has an approved pretreatment program with significant industrial users (SIUs) discharging into the collection system. Many operators have wastewater systems with multiple WWTPs that are covered by a single pretreatment program. It is assumed that, if there are no interconnections between the collection systems, the WWTPs that have no SIUs discharging to their associated collection system, and which have a design flow of less than 1.0 MGD, are not required to conduct WET testing. It would be helpful if this were clarified.

Recommendation: Modify the second paragraph in the "Domestic dischargers" section to read as follows:

> *"Permittees with more than one flow phase in their permit begin WET testing upon expansion to 1.0 MGD or greater. In wastewater systems served by multiple WWTPs but with a single approved pretreatment program, plants with a design flow less than 1.0 MGD are not required to conduct WET testing if there are no significant industrial users discharging to the collection system served by that plant."*

Number of Males, Page 83

The presence of males in the Ceriodaphnia dubia population is a sign of a stressed culture. Healthy cultures should not include males.

Recommendation: Require that the test population contain no more than two males in a single concentration and no more than three males in the entire test.

Testing Frequencies, Page 84

In the existing IPs, some permittees are required to do quarterly testing with no opportunity to qualify for the testing frequency reduction. The proposed revisions to the

IPs allow TCEQ to approve a reduction in testing frequency when such action is justified. TACWA supports this revision.

Recommendation: Adopt the proposed provisions on testing frequencies.

Reasonable Potential Determination, General Pages 88 – 91

TACWA strongly supports the decision by TCEQ not to use the RP determination method in the Technical Support Document for Water Quality-based Toxics Control, (March 1991) (TSD). The TSD statistical equation bears no relationship to any technical studies regarding the magnitude and duration of toxic exposures that would adversely impact aquatic life. Toxic effects are determined by both magnitude and duration of exposure to the toxicant.

Permit decisions based on the TSD equation conclude that a potential for impacts on aquatic life exists if there is a single sublethal failure over any period of record (one year, five years, twenty years, etc.) or any number of samples (ten samples, 50 samples, 200 samples, etc.). There are no scientific studies on the combined results of magnitude and exposure based on WET tests that support this conclusion.

Since a single-test failure is interpreted to be RP, reliance on the TSD means all decisions regarding permit limits are based on the Best Professional Judgment (BPJ) of the TCEQ permit writer and the EPA reviewer. The regulated community needs and deserves a permit determination process that is more predictable and is grounded in sound science.

Recommendation: Do not adopt the TSD procedure for determining RP.

Reasonable Potential Determination, Presumption of Toxicity, Pages 89 and 90

TACWA also supports that aspect of the process outlined for RP determinations that considers seven factors when assessing the reliability of lethal tests and ten factors when assessing the reliability of sublethal tests. It is important that these factors be considered when assessing data for RP determinations because of the significance, sensitivity and variability of the test, as discussed above. However, the role of these factors should be clarified since the IPs also provide that "Toxicity is presumed if a test fails for the lethal or sublethal endpoint." Because toxicity is presumed during the initial

RP screen, the use of the factors to rebut or confirm such a presumption in the final RP screen should be clearly articulated.

Recommendation: Modify the second paragraph on page 89 as follows:

> *"Toxicity is presumed, during the initial screen for RP, if a test fails for the lethal or sublethal endpoint. A test is considered to have failed if a statistically significant difference occurs between the control and the critical dilution. The presumption of toxicity shall be rebutted or confirmed during the final RP screening process as outlined below."*

Other Uses of Reasonable Potential Screening Factors, Pages 89 and 90

The use of the seven/ten factors in the final RP determinations for lethal and sublethal test results will result in better RP determinations because they will require a critical and detailed review of WET test results. However, these factors are equally applicable to the assessment of test results for other purposes. Therefore, they should be employed in other parts of the WET program, as well. Specifically, the seven/ten factors should also be used to evaluate test results when determining permittee reporting requirements, when requiring a TRE to be initiated, and when assessing compliance with a WET limit. Like the RP determinations, the use of the review factors in these areas will lead to better, and more reasonable, permitting and enforcement decisions.

Recommendation: Rather than including the seven/ten factors in the "Reasonable Potential Determination" section, delete the second paragraph on page 89, and add a new section preceding "Reasonable Potential Determination" on page 88 as follows:

> *"Secondary Screen of Test Results*
>
> *A test failure is initially presumed to have occurred if a statistically significant difference occurs between the control and the critical dilution. This presumption may be confirmed or rebutted through the consideration of the following factors when assessing data for any of the permitting purposes provided herein, including, but not limited to, determinations of reasonable potential, determinations of testing frequencies and revisions*

to same, initiation of TREs, compliance with WET limits, and permittee reporting requirements: {insert factors to be assessed for lethal and sublethal test results here rather than in the RP sections}."

Alternatives to WET Limit, Page 89 and Page 91

The sections "Reasonable Potential–Lethality" and "Reasonable Potential–Sublethality" each end with a paragraph discussing possible alternatives to a WET limit at the end of the compliance period. The IPs provide that, for both lethal and sublethal WET permit limits, the permittee can apply for a permit amendment to replace the WET limit with a chemical-specific limit prior to the end of the compliance period. Both the existing and the proposed Ch 307 provide that a permit may be amended to include Best Management Practices in lieu of a WET limit, if appropriate. This alternative should also be identified in the proposed IPs.

Recommendation: Amend the first sentence of the last paragraph in the section "Reasonable Potential – Lethality" and in the section "Reasonable Potential – Sublethality" as follows:

> *"If appropriate, the permittee may apply for a permit amendment to add a chemical-specific limit or best management practices designed to reduce or eliminate toxicity prior to the end of the compliance period." [addition underlined]*

Compliance Period for WET Limits, Pages 97 – 99

TACWA strongly urges that WET limits do not take effect prior to the expiration date of the permit in which they are initially imposed. The proposal to provide a five-year permit is appreciated; but five years may not be sufficient in many cases, particularly with respect to sublethal permit limits.

Many factors beyond the permittee's control may preclude its ability either to provide appropriate WET controls or to amend the permit to establish a chemical-specific limit or Best Management Practice (BMP) within a five-year period. Contributing factors to this concern include the following:

- When required to achieve compliance with other types of parameters, the permittee knows what parameter must be controlled and can immediately begin to research treatment methods. With WET, an extensive study is required to determine the substance(s) to be controlled before research can begin on control methods.
- In some cases, the causative substances cannot be identified.
- Sublethal test failures are typically sporadic and, frequently, not of sufficient magnitude to support TRE-type studies. It can take several years to acquire enough suitable samples to achieve confirmed results.
- The permittee cannot control the length of the permitting process. Issues unrelated to WET can arise and substantially delay permit reissuance.

Recommendation: Provide that new WET limits will take effect upon subsequent reissuance of the permit.

Enforcement of WET Limits, Pages 97 – 99

For the most part, TACWA supports the proposed definition of what triggers a Notice of Enforcement (NOE). One modification is proposed:

- The permit limit should be structured in accordance with the NOE provisions; i.e., a single test failure should not be defined as a permit violation. To do so would subject the permittee to the possibility of third-party lawsuits for permit violations even when TCEQ does not consider the test results to warrant enforcement.

Recommendation:

- Define the permit limit the same as the NOE trigger.

WET Failures that Cannot be Eliminated, Page 98

Section 307.6(e)(2)(F)(v) of Ch 307 provides permitting flexibility when WET cannot be controlled because of "technological, economic, or legal limits of treatability or control." No such exemption is present in the proposed WET language in the IPs. Rather, the

WET IPs require that a permit limit be established, thus subjecting the permittee to permit violations for conditions it has no ability to control. This is inequitable.

Recommendation: Amend the last sentence of the first paragraph of the section titled "Sublethal WET Limit" as follows:

> *"In such cases, the permit will be amended to add a sublethal WET limit with a compliance period unless it is determined that the limit cannot be achieved due to technological, economic, or legal limits of treatability or control." [addition underlined]*

Toxicity Attributable to Dissolved Salts, Pages 104 108

This section provides that test failures due to the presence of dissolved salts are not toxicity, a concept which TACWA supports. However, to qualify for this exemption, the permittee has to show dissolved salts are "the primary" cause of test failures. There is no defined scientific method for establishing "the primary" causative factor, especially for sublethal test failures.

Recommendation: Require that dissolved salts be "a primary" cause of toxicity rather than "the primary" cause of toxicity.

PERMIT LIMITS FOR ALUMINUM IN STORMWATER DISCHARGES, PAGE 145

The final paragraph in this section sets forth the conditions under which aluminum is considered not to be a water quality concern; and, accordingly, a limit is not required. However, the paragraph contains the statement that "Best management practices may be included in the permit." If there is no concern for adverse impacts and no requirement for a permit limit, it is not clear why the permit should require specific management practices for aluminum.

Recommendation: Delete the following sentence in the last paragraph of this section, "Best management practices may be included in the permit."

SECTION ON TECHNOLOGICAL, ECONOMIC, OR LEGAL LIMITS OF TREATABILITY OR CONTROL FOR SPECIFIC TOXIC MATERIALS, PAGE 192

The title should retain the concept that permit limits may be modified based on technological, or economic, or legal constraints. In addition, it should be noted that this provision [Section 307.6(e)(2)(F)(v)] specifically applies to limits for total toxicity. The specific toxic material causing failures of the total toxicity test may not be known.

Recommendation: Change the title of this section to, "Technological, Economic, or Legal Limits of Treatability or Control for Total Toxicity."

DISCUSSIONS OF ANALYTICAL PROCEDURES, PAGES 151 – 154 AND APPENDIX E

There have been significant revisions to the provisions in the IPs that identify analytical procedures for toxics. Several of these revisions are inappropriate. Concerns exist with respect to the values and tests proposed as Minimum Analytical Limits (MALs), as well as the manner in which the MALs are applied. Examples of these concerns are as follows:

- Specific MALs
  - A number of the MALs are below reliable quantification limits. Ch 307 and the IPs specifically state that the method detection limit is not the MAL. However, for some parameters, the MAL has been set at the method detection limit.
  - Some of the methods are obsolete, such as EPA Method 618.
  - Since analytical data for TPDES permits are required to be provided by a National Environmental Laboratory Accreditation Conference (NELAC) accredited laboratory, the MALs should be coordinated with NELAC reporting protocols.
- Application of MALs
  - The proposed MALs should not be applied to analyses of influent samples. MALs are matrix-specific, and an influent matrix is substantially different than an effluent matrix.

- The permittee should not always be required to use the method with the lowest detection limit. The analytical method used need only be as sensitive as necessary to demonstrate compliance with water quality standards.

Recommendations: TACWA recommends the following:

- Convene a workgroup of representatives of laboratories performing water quality analyses and NELAC representatives to obtain information on current methods and achievable quantification limits.
- Amend footnote 1) on Appendix E to delete the statement that these MALs are appropriately applied to influents.
- Provide that the permittee can use a 40 CFR Part 136 approved method that is not the most sensitive, if it is sufficiently sensitive to demonstrate compliance with water quality standards.

TABLE 1
APPLICATION OF TCEQ COMPLETELY MIXED RESERVOIR MODEL FOR TOTAL PHOSPHORUS*

$TP_R = w' / (v_s + z/t)$

SEGMENT	RESERVOIR	WWTP FLOW	TOTAL PHOSPHORUS CONCENTRATION IN DISCHARGE	ANNUAL TP LOADING = 1,381,525 x Q_P x TP_d	LAKE SURFACE AREA**		AREAL LOADING RATE = TP_L/A_R	SETTLING VELOCITY	CAPACITY**	MEAN DEPTH = [(8)/(4)]/3.28	RETENTION TIME**		RESERVOIR ANNUAL AVG TP DUE TO DISCHARGE	SCREENING LEVEL TP***	AMBIENT TP***	% CHANGE DUE TO DISCHARGE
		Q_P	TP_d	TP_L		A_R	w'	v_s		z	t	z/t	TP_R	TP_{SC}	TP_A	
		(MGD)	(mg/L)	(g/yr)	(acres)	(meters^2)	(g/m^2-yr)	(m/yr)	(acres-ft)	(m)	(yrs)	(m/yr)	(mg/L)	(mg/L)	(mg/L)	%
	Column Number	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
0102	LAKE MEREDITH	1	3.5	4,835,338	16,411	66,415,317	0.0728	13.0	779,556	14.48	15.1	0.96	0.00522	0.028	0.019	58.0
		5	3.5	24,176,688	16,411	66,415,317	0.3640	13.0	779,556	14.48	15.1	0.96	0.02608	0.028	0.019	289.8
		20	3.5	96,706,750	16,411	66,415,317	1.4561	13.0	779,556	14.48	15.1	0.96	0.10431	0.028	0.019	1,159.0
		1	1	1,381,525	16,411	66,415,317	0.0208	13.0	779,556	14.48	15.1	0.96	0.00149	0.028	0.019	16.6
		20	0.5	13,815,250	16,411	66,415,317	0.2080	13.0	779,556	14.48	15.1	0.96	0.01490	0.028	0.019	165.6
0803	LAKE LIVINGSTON	1	3.5	4,835,338	83,277	337,022,019	0.0143	13.0	1,741,867	6.38	0.35	18.22	0.00046	0.21	0.156	0.9
		5	3.5	24,176,688	83,277	337,022,019	0.0717	13.0	1,741,867	6.38	0.35	18.22	0.00230	0.21	0.156	4.3
		20	3.5	96,706,750	83,277	337,022,019	0.2869	13.0	1,741,867	6.38	0.35	18.22	0.00919	0.21	0.156	17.0
		1	1	1,381,525	83,277	337,022,019	0.0041	13.0	1,741,867	6.38	0.35	18.22	0.00013	0.21	0.156	0.2
		20	0.5	13,815,250	83,277	337,022,019	0.0410	13.0	1,741,867	6.38	0.35	18.22	0.00131	0.21	0.156	2.4
0809	EAGLE MTN RESERVOIR	1	3.5	4,835,338	8,702	35,216,994	0.1373	13.0	182,500	6.39	0.95	6.73	0.00696	0.069	0.052	40.9
		5	3.5	24,176,688	8,702	35,216,994	0.6865	13.0	182,500	6.39	0.95	6.73	0.03479	0.069	0.052	204.7
		20	3.5	96,706,750	8,702	35,216,994	2.7460	13.0	182,500	6.39	0.95	6.73	0.13918	0.069	0.052	818.7
		1	1	1,381,525	8,702	35,216,994	0.0392	13.0	182,500	6.39	0.95	6.73	0.00199	0.069	0.052	11.7
		20	0.5	13,815,250	8,702	35,216,994	0.3923	13.0	182,500	6.39	0.95	6.73	0.01988	0.069	0.052	117.0
0818	CEDAR CK RESERVOIR	1	3.5	4,835,338	32,873	133,037,031	0.0363	13.0	644,686	5.98	1.7	3.52	0.00220	0.072	0.056	13.8
		5	3.5	24,176,688	32,873	133,037,031	0.1817	13.0	644,686	5.98	1.7	3.52	0.01100	0.072	0.056	68.8
		20	3.5	96,706,750	32,873	133,037,031	0.7269	13.0	644,686	5.98	1.7	3.52	0.04401	0.072	0.056	275.1
		1	1	1,381,525	32,873	133,037,031	0.0104	13.0	644,686	5.98	1.7	3.52	0.00063	0.072	0.056	3.9
		20	0.5	13,815,250	32,873	133,037,031	0.1038	13.0	644,686	5.98	1.7	3.52	0.00629	0.072	0.056	39.3
0823	LEWISVILLE LAKE	1	3.5	4,835,338	29,170	118,050,990	0.0410	13.0	543,988	5.69	0.99	5.74	0.00219	0.069	0.047	9.9
		5	3.5	24,176,688	29,170	118,050,990	0.2048	13.0	543,988	5.69	0.99	5.74	0.01093	0.069	0.047	49.7
		20	3.5	96,706,750	29,170	118,050,990	0.8192	13.0	543,988	5.69	0.99	5.74	0.04371	0.069	0.047	198.7
		1	1	1,381,525	29,170	118,050,990	0.0117	13.0	543,988	5.69	0.99	5.74	0.00062	0.069	0.047	2.8
		20	0.5	13,815,250	29,170	118,050,990	0.1170	13.0	543,988	5.69	0.99	5.74	0.00624	0.069	0.047	28.4
0826	GRAPEVINE LAKE	1	3.5	4,835,338	6,893	27,895,971	0.1733	13.0	164,702	7.28	1.5	4.86	0.00971	0.062	0.034	34.7
		5	3.5	24,176,688	6,893	27,895,971	0.8667	13.0	164,702	7.28	1.5	4.86	0.04854	0.062	0.034	173.3
		20	3.5	96,706,750	6,893	27,895,971	3.4667	13.0	164,702	7.28	1.5	4.86	0.19414	0.062	0.034	693.4
		1	1	1,381,525	6,893	27,895,971	0.0495	13.0	164,702	7.28	1.5	4.86	0.00277	0.062	0.034	9.9
		20	0.5	13,815,250	6,893	27,895,971	0.4952	13.0	164,702	7.28	1.5	4.86	0.02773	0.062	0.034	99.1
0836	RICHLAND-CHAMBERS RES	1	3.5	4,835,338	41,356	167,367,732	0.0289	13.0	1,103,816	8.14	1.8	4.52	0.00165	0.044	0.033	15.0
		5	3.5	24,176,688	41,356	167,367,732	0.1445	13.0	1,103,816	8.14	1.8	4.52	0.00824	0.044	0.033	75.0
		20	3.5	96,706,750	41,356	167,367,732	0.5778	13.0	1,103,816	8.14	1.8	4.52	0.03298	0.044	0.033	299.8
		1	1	1,381,525	41,356	167,367,732	0.0083	13.0	1,103,816	8.14	1.8	4.52	0.00047	0.044	0.033	4.3
		20	0.5	13,815,250	41,356	167,367,732	0.0825	13.0	1,103,816	8.14	1.8	4.52	0.00471	0.044	0.033	42.8
1404	LAKE TRAVIS	1	3.5	4,835,338	18,622	75,363,234	0.0642	13.0	1,113,902	18.24	1.1	16.58	0.00217	0.018	0.012	36.2
		5	3.5	24,176,688	18,622	75,363,234	0.3208	13.0	1,113,902	18.24	1.1	16.58	0.01085	0.018	0.012	180.8
		20	3.5	96,706,750	18,622	75,363,234	1.2832	13.0	1,113,902	18.24	1.1	16.58	0.04338	0.018	0.012	723.0
		1	1	1,381,525	18,622	75,363,234	0.0183	13.0	1,113,902	18.24	1.1	16.58	0.00062	0.018	0.012	10.3
		20	0.5	13,815,250	18,622	75,363,234	0.1833	13.0	1,113,902	18.24	1.1	16.58	0.00620	0.018	0.012	103.3
2103	LAKE CORPUS CHRISTI	1	3.5	4,835,338	18,256	73,882,032	0.0654	13.0	256,961	4.29	0.53	8.10	0.00310	0.19	0.151	8.0
		5	3.5	24,176,688	18,256	73,882,032	0.3272	13.0	256,961	4.29	0.53	8.10	0.01551	0.19	0.151	39.8
		20	3.5	96,706,750	18,256	73,882,032	1.3089	13.0	256,961	4.29	0.53	8.10	0.06204	0.19	0.151	159.1
		1	1	1,381,525	18,256	73,882,032	0.0187	13.0	256,961	4.29	0.53	8.10	0.00089	0.19	0.151	2.3
		20	0.5	13,815,250	18,256	73,882,032	0.1870	13.0	256,961	4.29	0.53	8.10	0.00886	0.19	0.151	22.7
2305	INTERNATIONAL AMISTAD RES	1	3.5	4,835,338	65,597	265,471,059	0.0182	13.0	3,275,532	15.22	2.1	7.25	0.00090	0.02	0.014	15.0
		5	3.5	24,176,688	65,597	265,471,059	0.0911	13.0	3,275,532	15.22	2.1	7.25	0.00450	0.02	0.014	75.0
		20	3.5	96,706,750	65,597	265,471,059	0.3643	13.0	3,275,532	15.22	2.1	7.25	0.01799	0.02	0.014	299.8
		1	1	1,381,525	65,597	265,471,059	0.0052	13.0	3,275,532	15.22	2.1	7.25	0.00026	0.02	0.014	4.3
		20	0.5	13,815,250	65,597	265,471,059	0.0520	13.0	3,275,532	15.22	2.1	7.25	0.00257	0.02	0.014	42.8

*Procedures to Implement the Texas Surface Water Quality Standards, TCEQ Water Quality Division, RG-194, November 21, 2008 (DRAFT), pages 27 - 28.

**Ibid, page 274 - 277.

***Ibid, page 270 - 273.

****Compare to High Level of Concern if TPR >0.001

TABLE 2
APPLICATION OF CHLOROPHYLL REGRESSION EQUATION FOR TEXAS RESERVOIRS*

log[chlor a (ug/L)] = 0.160 log[TP (ug/L] + 0.509 log[TSS (mg/L)] + 0.799

SEGMENT	RESERVOIR	TABLE F-1** TP (ug/L)	TABLE F-1 TSS (mg/L)	log TP	0.160 log TP	log TSS	0.509 log TSS	(4) + (6) +0.799	CALCULATED CHLOROPHYLL = anti log (7) (ug/L)	COMPARE TO CHLOROPHYLL IN TABLE F-1 (ug/L)
	Column Number	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
0102	LAKE MEREDITH	19	5	1.2788	0.2046	0.6990	0.3558	1.3594	22.88	2.46
0803	LAKE LIVINGSTON	156	19	2.1931	0.3509	1.2788	0.6509	1.8008	63.21	17.04
0809	EAGLE MTN RESERVOIR	52	11	1.7160	0.2746	1.0414	0.5301	1.6036	40.14	11.32
0818	CEDAR CK RESERVOIR	56	10	1.7482	0.2797	1.0000	0.5090	1.5877	38.70	16.39
0823	LEWISVILLE LAKE	47	12	1.6721	0.2675	1.0792	0.5493	1.6158	41.29	10.77
0826	GRAPEVINE LAKE	34	8.4	1.5315	0.2450	0.9243	0.4705	1.5145	32.70	7.53
0836	RICHLAND-CHAMBERS RES	33	5.9	1.5185	0.2430	0.7709	0.3924	1.4343	27.18	10.3
1404	LAKE TRAVIS	12	3	1.0792	0.1727	0.4771	0.2429	1.2145	16.39	2.06
2103	LAKE CORPUS CHRISTI	151	15	2.1790	0.3486	1.1761	0.5986	1.7463	55.75	8.16
2305	INTERNATIONAL AMISTAD RES	14	4	1.1461	0.1834	0.6021	0.3064	1.2888	19.45	1.44

*Procedures to Implement the Texas Surface Water Quality Standards, TCEQ Water Quality Division, RG-194, November 21, 2008 (DRAFT), page 29.

**Ibid, page 270 - 273.