

**Municipal Proposal for
WET Reasonable Potential Determination
(July 11, 2008)**

This would be a two-tier process that would evaluate the history of lethal test failures and sublethal test failures over the most recent five-year period. "Test failure" would be defined as follows:

- The NOEC is less than the critical dilution; or
- The IC₂₅ is less than the critical dilution; or
- The Percent Effect of the critical dilution is greater than 25%,

depending on which endpoint is applicable.

A. The Tier I Screening: The following protocol assumes the critical dilution has not changed during the period for which data are being reviewed and a sufficient data base exists. If there has been a change in the critical dilution, or there are not sufficient data, this protocol will be modified appropriately.

1. Evaluation will be the same for lethal and sublethal test results:
2. Lethal and sublethal tests will be reviewed independently; each species will be reviewed independently.
3. If greater than 10% of the test results during the past five years (or period of record if the period of record is shorter than five years) have been failures, the Tier II evaluation will be conducted.
4. If 10% or less of the test results during the past five years have been failures, it will be concluded there is no Reasonable Potential (RP).
5. If a permit has existing WET limits, and 10% or less of the test results during the most recent three years have been failures, the WET limit will be removed from the permit.

B. Tier II Screening for Lethal Test Failures

1. If there has not been more than 1 failure in the last 2 years, there is no RP.
2. If there have been 2 or more failures in the last 2 years, the test failures during the past 5 years will be reviewed further to identify the tests to be used in the RP determination. Any of the tests that were categorized as failures that meet the following conditions will be removed from consideration.

- Split sample testing yielded conflicting results regarding whether there was a lethal test failure.
- Accelerated testing was conducted, and there were no lethal test failures during the period of accelerated testing. The initial test failure would be removed from consideration.
- The test did not exhibit a monotonic dose response.
- There were atypical conditions at the WWTP while the samples were being collected; e.g., units out of service, significant construction underway, high storm flows, etc.
- The test organisms exhibited erratic or overly sensitive response; e.g., the control had very little variability and a smaller than normal CV.
- Errors are found in calculations, data transfers, or test/laboratory procedures.
- There are other factors that warrant the application of Best Professional Judgment.

After tests have been removed from consideration based on the factors listed above, and there are still greater than 10% of the samples that produced a lethal test failure, WET limits will be placed in the permit unless, based on Best Professional Judgment, it is concluded that the test results are not indicative of potential toxic conditions in the receiving waters.

C. Tier II Screening for Sublethal Test Failures

1. If the Critical Dilution is greater than 75%, a test with a NOEC or IC₂₅ endpoint will only be considered to be a failure if the NOEC or IC₂₅ is less than 75%.
2. If there have not been more than two sublethal failures in the last 2 years, assuming a minimum of eight tests, there is no RP.
3. If there have been 3 or more sublethal failures in the last two years, the test failures during the last five years would be reviewed further to identify the tests to be used in the RP determination. Any of the tests categorized as failures that meet the following conditions will be removed from consideration.
 - Split sample testing yielded conflicting results regarding whether there was a sublethal test failure.
 - If accelerated testing was conducted, and there were no sublethal test failures during the period of accelerated testing. The initial test failure will be removed from consideration.

- The test did not exhibit a monotonic dose response.
- There were atypical conditions at the WWTP while the samples were being collected; e.g., units out of service, significant construction underway, high storm flows, etc.
- The test organisms exhibited erratic or overly sensitive response; e.g., the control had very little variability and a smaller than normal CV.
- There were conflicting results regarding whether there was a sublethal test failure depending on whether the endpoint was based on NOEC, IC₂₅ or some other appropriate endpoint.
- The sample did not exhibit both a 25% or greater effect at the critical dilution and a 40% or greater effect at the highest effluent concentration tested.
- Errors are found in calculations, data transfers, or test/laboratory procedures.
- There are other factors that warrant the application of Best Professional Judgment.

After tests have been removed from consideration based on the factors listed above, if greater than 20% of the samples over the previous five years produced a sublethal test failure, WET limits will be placed in the permit unless, based on Best Professional Judgment, it is concluded that the test results are not indicative of potential toxic conditions in the receiving waters.

**Municipal Proposal for Permit Provisions
When There Are Whole Effluent Toxicity Limits
(July 11, 2008)**

Permits with Whole Effluent Toxicity (WET) limits should address the following:

- Ability to remove the permit limits;
- Ability to substitute a chemical-specific limit or Best Management Practice for the WET limits;
- Form of limits;
- Accelerated testing; and
- Ability to terminate a TRE.

Each of these items is discussed below:

In the following document, the terms “test failure” and “permit violation” have different meanings. A “test failure” applies to a single test and is defined as follows:

- The NOEC is less than the critical dilution; or
- The IC₂₅ is less than the critical dilution; or
- The Percent Effect at the critical dilution is greater than 25%;

depending on which endpoint is applicable. A “permit violation” refers to one of the following:

- The 3-month median of the lethal Percent Effect at the critical dilution exceeds 25%;
or
- The 12-month median of the sublethal Percent Effect of the critical dilution exceeds 25%.

I. Ability to Remove a WET Permit Limit - This provision will be different depending on whether or not the WET limits are a new requirement or an existing requirement.

A. New WET Limit

If WET limits are included in a permit that previously has not had WET limits, a compliance period will be provided before the limits take effect. The purposes of the compliance period are (1) to confirm that toxicity is present at a sufficient frequency and magnitude to support a successful TRE and (2) to determine if a

chemical-specific limit or Best Management Practice will provide an effective control mechanism.

The permit will be issued for a three-year period in order to allow the permittee time to characterize the toxicity occurrences and, if practical, to conduct a TRE. The following provision will be included in the "Other Requirements" section of the permit.

"The following permit limits for WET (insert limits here) will take effect upon reissuance of this permit. WET limits will not be included in the next permit if any of the following conditions exists:

- There have been no exceedances of the WET limits set forth above during the most recent three years based on at least quarterly testing; or
- It is determined that a chemical-specific limit or a Best Management Practice is an appropriate control mechanism; or
- It is determined that current technologies for TREs and treatment are not sufficient to support development of a control strategy; or
- It is demonstrated there are no instream impacts due to the discharge; or
- It is demonstrated that the test failures are the result of the quality of the source water (for example, TDS, alkalinity, hardness, etc.)."

B. Existing WET Limit

Upon reissuance, a permit with a WET limit that is in effect will be amended to remove the WET limit if any of the following conditions exists:

- The permit limit is based on individual NOEC test results, and no more than 10% of the lethal test results and 20% of the sublethal test results have been failures during the most recent three years based on at least quarterly tests; or
- The permit limit is based on a median, and there have been no exceedances of the WET limits on page 2 during the most recent three years based on at least quarterly testing; or
- A chemical-specific limit or Best Management Practice has been determined to be an effective control mechanism.

- It is demonstrated that test failures are the result of the quality of the source water (for example, TDS, alkalinity, hardness, etc.)

Language setting forth this ability to remove an existing WET limit will be included in "Other Requirements" of all proposed permits containing an effective WET limit.

II. Form of Limits

The form of the permit limits will be the same for lethal and sublethal WET limits, but specific parameters will be different for the two types of tests. The permit limits will be based on Percent Effect, as determined from a best-fit line computed using all of the results of the full dilution series for the test. Available statistical software will be used to determine the best-fit line. Criteria will be established for selecting the appropriate equation to be used to determine the best-fit line (one equation is not equally valid in all cases).

A. Lethal Permit Limits

A permit limit exceedance occurs if the median of the Percent Effect values of all tests during a three-month period exceeds 25% at the critical dilution. The median will be recalculated each month for a running three-month period.

B. Sublethal Permit Limit

A permit limit exceedance occurs if the median of the Percent Effect values of all tests during the preceding 12-month period exceeds 25% at the critical dilution. The median will be recalculated each month for a running 12-month period.

III. Accelerated Testing and TRE Triggers

Permits should require a TRE only if there are significant, persistent test failures, as demonstrated in accelerated testing following a test failure. However, the triggers should be different for lethal and sublethal failures.

A. Lethal Effect

If the lethal Percent Effect exceeds 25% at the critical dilution, monthly testing will be conducted during the following two months. If two of the three tests are lethal failures, a TRE will be initiated. If neither of the two retests fails for lethality, the permittee may return to quarterly testing.

B. Sublethal Effect

If there is a sublethal test failure, monthly testing will be conducted until one of the following occurs:

- If the sublethal Percent Effect exceeds 25% at the critical dilution in three out of the four most recent tests and the sublethal Percent Effect exceeds 40% at the highest effluent concentration in two out of four of the most recent tests, a TRE will be initiated.
- If there are three successive months when there is not a sublethal test failure, the permittee may return to quarterly testing.

IV. Toxicity Reduction Evaluation Provisions

TRE provisions should address the following:

- Ability to terminate a TRE; and
- Permit limit exceedances while a TRE is being conducted.

Each of these is discussed in greater detail below.

A. Termination of TRE

Permit provisions should be established whereby a TRE can be terminated if any of the following conditions apply:

- For 12 months, based on at least monthly testing, none of the samples had sufficient toxicity to support TRE studies, or
- It is determined that the current technologies for TREs and treatment are not sufficient to support the development of a control strategy.

B. Permit Exceedances during TRE

In those cases where WET limits have taken effect, permit violations should not be incurred as long as the permittee is implementing the TRE in accordance with permit provisions. This should be clearly set forth in the permit. For example, the permit could specify that permit violations do not occur as long as the permittee develops and implements an approvable TRE Work Plan with due diligence in accordance with the provisions in the permit regarding schedule and content of the TRE.

**Municipal Proposal for TCEQ Enforcement and Compliance
History Protocols for Whole Effluent Toxicity
(July 11, 2008)**

A permittee will not be referred for WET permit limit enforcement or have WET permit violations included in its compliance history unless the permit limits (3-month rolling median for lethal and 12-month rolling median for sublethal) are exceeded in 2 out of 4 consecutive months.

In those cases where WET limits have taken effect, permit violations should not be incurred as long as the permittee is implementing the TRE in accordance with permit provisions. This should be clearly set forth in the permit. For example, the permit could specify that permit violations do not occur as long as the permittee develops and implements an approvable TRE Work Plan with due diligence in accordance with the provisions in the permit regarding schedule and content of the TRE.