CHAPTER 1.14 – Standard WET Permit Language

The purpose of this chapter is to provide staff with guidance regarding how WET requirements should be specified in WPDES permits.

NOTICE: This document is intended solely as guidance, and does not contain any mandatory requirements except where requirements found in statute or administrative rule are referenced. This guidance does not establish or affect legal rights or obligations, and is not finally determinative of any of the issues addressed. This guidance does not create any rights enforceable by any party in litigation with the State of Wisconsin or the Department of Natural Resources. Any regulatory decisions made by the Department of Natural Resources in any matter addressed by this guidance will be made by applying the governing statutes and administrative rules to the relevant facts.

This chapter is intended to help staff use the proper language in WPDES permits to implement state and federal WET regulations, the requirements of the "*State of Wisconsin Aquatic Life Toxicity Testing Methods Manual, 2nd Edition*", and the guidance provided in other chapters of this document. Shown below is standard template language that appears in SWAMP. The callout boxes shown below provide some advice to permit drafters about how to modify this standard language, if necessary, for individual discharge situations. Permit drafters may need to make other modifications to WET permit language to fit site-specific situations. They should contact the Biomonitoring Coordinator (Kari.Fleming@wisconsin.gov; 608-267-7663) with questions related to the use of other alternate language. See Chapter 1.12 for advice about WET compliance schedule language.

WET Footnote

(appears beneath the effluent limits table for each outfall where WET testing is required)

1.1.1 Whole Effluent Toxicity (WET) Testing

Primary Control Water:

> Lab water is allowed in acute tests where a ZID is not allowed (compliance is determined in 100% effluent). Receiving water is required in chronic and acute with a ZID.
> See Chapter 1.2 (http://dnr.wi.gov/topic/wastewater/WETguidance.html) for more information.

Acute Mixing Zone Concentration (AMZ):

> Add this line if a zone of initial dilution (ZID) is approved for the discharge.

Instream Waste Concentration (IWC):

> This line is applicable only if chronic WET is required. Remove this line if there is no chronic monitoring.

Dilution series: At least five effluent concentrations and dual controls must be included in each test.

- **Acute:** 100, 50, 25, 12.5, 6.25%, and any additional selected by the permittee.

> Pick the applicable dilution series, based on the permittee's IWC. Delete the series that is not applicable.

- **Chronic:** *100, 30, 10, 3, 1% (if the IWC ≤30%)* ***or*** *100, 75, 50, 25, 12.5% (if the IWC >30%)* and any additional selected by the permittee.

WET Testing Frequency:

Pick one.

- **Acute** tests shall be conducted *(once every other year, once each year, twice each year, quarterly, or bimonthly)* in rotating quarters, in order to collect seasonal information about the discharge. For example, tests are required during the following quarters:

  Enter each applicable calendar quarter

  Specify the quarter.

  Acute WET testing shall continue after the permit expiration date (until the permit is reissued) in accordance with the WET requirements specified for the last full calendar year of this permit. For example, the next test would be required in *(list appropriate quarter)*.

Pick one.

- **Chronic** tests shall be conducted *(once every other year, once each year, twice each year, quarterly, or bimonthly)* in rotating quarters, in order to collect seasonal information about the discharge. For example, tests are required during the following quarters:

  Enter each applicable calendar quarter

  Specify the quarter.

  Chronic WET testing shall continue after the permit expiration date (until the permit is reissued) in accordance with the WET requirements specified for the last full calendar year of this permit. For example, the next test would be required in *(list appropriate quarter)*.

Testing: WET testing shall be performed during normal operating conditions. Permittees are not allowed to turn off or otherwise modify treatment systems, production processes, or change other operating or treatment conditions during WET tests.

Reporting: The permittee shall report test results on the Discharge Monitoring Report form, and also complete the "Whole Effluent Toxicity Test Report Form" (Section 6, "State of Wisconsin Aquatic Life Toxicity Testing Methods Manual, 2nd Edition"), for each test. The original, complete, signed version of the Whole Effluent Toxicity Test Report Form shall be sent to the Biomonitoring Coordinator, Bureau of Water Quality, 101 S. Webster St., PO Box 7921, Madison, WI 53707-7921, within 45 days of test completion. The Discharge Monitoring Report (DMR) form shall be submitted electronically by the required deadline.

Remove acute sentence if no acute is required.
Remove chronic sentence if no chronic is required.

Determination of Positive Results: An acute toxicity test shall be considered positive if the Toxic Unit - Acute (TU_a) is greater than [X] for either species. The TU_a shall be calculated as follows: $TU_a = 100 \div LC_{50}$. A chronic toxicity test shall be considered positive if the Toxic Unit - Chronic (TU_c) is greater than [Y] for either species. The TU_c shall be calculated as follows: $TU_c = 100 \div IC_{25}$.

Enter the correct values for X and Y:
X = 1.0, if a ZID is not allowed, or 100 ÷ AMZ, if a ZID is allowed
Y = 100 ÷ IWC
See Ch. 1.3 (http://dnr.wi.gov/topic/wastewater/WETguidance.html) for more information.
AMZ and IWC are entered as whole numbers (e.g. IWC = 55% means 100/55)
WET Limits should be expressed using two significant digits (100/55 = 1.8 TUc)

Additional Testing Requirements: Within 90 days of a test which showed positive results, the permittee shall submit the results of at least 2 retests to the Biomonitoring Coordinator, on "Whole Effluent Toxicity Test Report Forms". The 90 day reporting period shall begin the day after the test which showed a positive result. The retests shall be completed using the same species and test methods specified for the original test (see the Standard Requirements section herein).

WET Standard Requirements (appears near the end of the permit, in the "Standard Requirements" section)

Placed in all permits with WET monitoring:

2.2.2 Whole Effluent Toxicity (WET) Monitoring Requirements
In order to determine the potential impact of the discharge on aquatic organisms, static-renewal toxicity tests shall be performed on the effluent in accordance with the procedures specified in the *"State of Wisconsin Aquatic Life Toxicity Testing Methods Manual, 2nd Edition" (PUB-WT-797*, November 2004) as required by NR 219.04, Table A, Wis. Adm. Code). All of the WET tests required in this permit, including any required retests, shall be conducted on the *Ceriodaphnia dubia* and fathead minnow species. Receiving water samples shall not be collected from any point in contact with the permittee's mixing zone and every attempt shall be made to avoid contact with any other discharge's mixing zone.

Change the species in this paragraph, if species other than C. dubia & fathead minnow are to be used in testing (rarely occurs).

Placed in all permits with WET monitoring:

2.2.3 Whole Effluent Toxicity (WET) Identification and Reduction
Within 60 days after the completion of a retest which showed positive results, the permittee shall submit a written report to the Biomonitoring Coordinator, Bureau of Water Quality, 101 S. Webster St., PO Box 7921, Madison, WI 53707-7921, which details the following:

- A description of actions the permittee has taken or will take to remove toxicity and to prevent the recurrence of toxicity;
- A description of toxicity reduction evaluation (TRE) investigations that have been or will be done to identify potential sources of toxicity, including some or all of the following actions:
  (a) Evaluate the performance of the treatment system to identify deficiencies contributing to effluent toxicity (e.g., operational problems, chemical additives, incomplete treatment)
  (b) Identify the compound(s) causing toxicity
  (c) Trace the compound(s) causing toxicity to their sources (e.g., industrial, commercial, domestic)
  (d) Evaluate, select, and implement methods or technologies to control effluent toxicity (e.g., in-plant or pretreatment controls, source reduction or removal)
- Where corrective actions including a TRE have not been completed, an expeditious schedule under which corrective actions will be implemented;
- If no actions have been taken, the reason for not taking action.

The permittee may also request approval from the Department to postpone additional retests in order to investigate the source(s) of toxicity. Postponed retests must be completed after toxicity is believed to have been removed.

Placed in permits with WET monitoring & a chloride variance:

2.2.4 Whole Effluent Toxicity and Chloride Source Reduction Measures
Section NR 106.89, Wis. Adm. Code, states that chloride limitations can be used in the permit in lieu of whole effluent toxicity testing requirements and limitations until chloride source reduction actions are completed, under the following conditions.

When an acute chloride limitation is included in the permit, acute whole effluent toxicity testing and limitations may be discontinued until chloride source reduction actions are completed, according to s. NR 106.89, Wis. Adm. Code, if either:

- The permittee can demonstrate to the satisfaction of the department that the effluent concentration of chloride exceeds 2,500 mg/l, or

- The permittee can demonstrate to the satisfaction of the department that the effluent concentration of chloride is less than 2,500 mg/l, but in excess of the calculated acute water quality-based effluent limitation, and additional data are submitted which demonstrate that chloride is the sole source of acute toxicity.

When a chronic chloride limitation is included in the permit, chronic whole effluent toxicity testing and limitations may be discontinued until chloride source reduction actions are completed, according to s. NR 106.89, Wis. Adm. Code, if either:

- The permittee can demonstrate to the satisfaction of the department that the effluent concentration of chloride exceeds 2 times the calculated chronic water quality-based effluent limitation, or

- The permittee can demonstrate to the satisfaction of the department that the effluent concentration of chloride is less than 2 times the calculated chronic water quality-based effluent limitation, but in excess of the calculated chronic water quality-based effluent limitation, and additional data are submitted which demonstrate that chloride is the sole source of chronic toxicity.

Following the completion of chloride source reduction activities, the department shall evaluate the need for whole effluent toxicity monitoring and limitation.

Placed in permits with WET monitoring & a condensate of whey (COW) discharge:

2.2.5 COW/NCCW or COW Discharges - WET Testing Requirements
If discharges consisting of condensate of whey (COW) wastewater only or non-contact cooling water mixed with COW waters (NCCW/COW) pass the first two acute toxicity tests and the first two chronic toxicity tests (if chronic toxicity testing is required) then the permittee is not required to perform additional toxicity testing during this permit term. If positive toxicity is experienced in any of the first two acute or chronic toxicity tests, the permittee may attempt to demonstrate that toxicity is due to ion deficiency. If it can be demonstrated that ion deficiency is the sole cause of toxicity in at least two consecutive positive tests, and the Department agrees in writing, the permittee will not be required to perform additional toxicity testing during this permit term. If it cannot be demonstrated that ion deficiency is the sole cause of toxicity in these tests, the permittee must complete the remaining toxicity tests

Placed in permits with WET monitoring, when ammonia limits based on ELS-absent criteria:

2.2.6 Whole Effluent Toxicity and ELS-absent Criteria for Ammonia

Effluent samples used in chronic fathead minnow tests may be modified to remove ammonia prior to testing, according to s. NR 106.36(2), Wis. Adm. Code, during periods when ammonia limits based on early life stage-absent criteria are in effect.