Chapter 173-205 WAC
WHOLE EFFLUENT TOXICITY TESTING AND LIMITS

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WAC

WAC 173-205-010 Purpose. The purpose of this chapter is to establish a procedure for deriving whole effluent toxicity limits in accordance with RCW 90.48.520, 40 C.F.R. 122.44(d), and 40 C.F.R. 122.44(e) for inclusion into National Pollutant Discharge Elimination System (NPDES) permits to protect aquatic life through the implementation of all known, available, and reasonable methods of prevention, control and treatment of toxicants and through the attainment of state water quality standards. The goal of this chapter is the eventual elimination of the discharge of toxics in toxic amounts.

[Statutory Authority: Chapter 90.48 RCW and 40 C.F.R. 122.44. WSR 93-20-110 (Order 91-54), § 173-205-010, filed 10/6/93, effective 11/6/93.]

WAC 173-205-020 Definitions. "Acute critical effluent concentration" means the maximum concentration of effluent during critical conditions at the boundary of the zone of acute criteria exceedance assigned in accordance with WAC 173-201A-100. The boundary may be based on distance or a percentage of flow. Where no zone of acute criteria exceedance is allowed, the acute critical effluent concentration shall be one hundred percent effluent.

"Acute statistical power standard" means that the maximum acceptable difference in survival that is not statistically significant between the control and the acute critical effluent concentration is twenty-nine percent. In order to determine if a whole effluent toxicity test with results that are not statistically significant meets the acute statistical power standard:

1. Subtract the mean survival across the replicates in the acute critical effluent concentration from the mean survival across the replicates in the control.

2. Divide this difference between the mean survivals by the mean survival across the control replicates.

3. Multiply the result by one hundred and express the product as a percent difference in survival.

4. If the percent difference in survival is equal to or less than twenty-nine percent, then the whole effluent toxicity test has met the power standard.

"Acute toxicity test" means a toxicity test with the death of test organisms as the measured response.

"Chronic critical effluent concentration" means the maximum concentration of effluent during critical conditions at the boundary of

the mixing zone assigned in accordance with WAC 173-201A-100. The boundary may be based on distance or a percentage of flow. Where no mixing zone is allowed, the chronic critical effluent concentration shall be one hundred percent effluent.

"Chronic statistical power standard" means that the maximum acceptable difference in response that is not statistically significant between the control and the acute or chronic critical effluent concentration is thirty-nine percent. The chronic statistical power standard does not apply to Fisher's Exact Test. In order to determine if a whole effluent toxicity test with results that are not statistically significant meets the chronic statistical power standard:

1. Subtract the mean of the responses across the replicates in the acute or chronic critical effluent concentration from the mean of the responses across the replicates in the control.

2. Divide this difference between the mean responses by the mean response across the control replicates.

3. Multiply the result by one hundred and express the product as a percent difference in response.

4. If the percent difference in response is equal to or less than thirty-nine percent, then the whole effluent toxicity test has met the power standard.

"Chronic toxicity test" means a toxicity test which measures a sublethal effect such as failed fertilization, development, growth, or reproduction. Organism survival is also a measured endpoint in some chronic toxicity tests.

"Critical conditions" means those circumstances when the physical, chemical, and biological characteristics of the receiving water environment interact with the effluent to produce the greatest potential adverse impact on aquatic biota and existing and characteristic water uses.

"Department" means the department of ecology of the state of Washington.

"EC_{50}" (effective concentration, fifty percent) means the effluent concentration estimated to cause an adverse effect in fifty percent of the test organisms in a toxicity test involving a series of dilutions of effluent.

"Effluent characterization" means, for whole effluent toxicity, establishing the baseline toxicity level by toxicity testing using multiple species on effluent samples taken over the seasons of one year. The effluent characterization toxicity test results shall also be used to determine the need for water quality-based whole effluent toxicity limits.

"Effluent screening tests" are full duration whole effluent toxicity tests that are conducted as a screen for toxicity in one hundred percent effluent or some other high concentration of effluent. No other effluent concentrations (except the control) are tested until toxicity has been detected in the effluent screening test.

"Hypothesis testing" means the mathematical technique for comparing the average response of the replicates of an effluent concentration to the average response of the control replicates at the end of a toxicity test in order to determine if there is a statistically significant difference in response within a level of certainty such as ninety-five percent or ninety-nine percent. For purposes of this chapter, Fisher's Exact Test is used as a hypothesis test for analyzing survival in the cladoceran survival and reproduction test.

"IC_{50}" (inhibition concentration, fifty percent) means the effluent concentration estimated to cause a fifty percent reduction in a biological function in a toxicity test involving a series of dilutions of effluent.

"LC_{50}" (lethal concentration, fifty percent) means the effluent concentration estimated to cause death in fifty percent of the test organisms in a toxicity test involving a series of dilutions.

"Multiple species" toxicity testing means conducting separate toxicity tests using different species on the same effluent sample in order to assess its effect on a broad range of organisms such as fish, invertebrates, or plants.

"NOEC" means the "no observed effect concentration" which is the highest concentration of effluent in a toxicity test shown to have no statistically significant adverse effects when compared to an appropriate control.

"Point estimates" are estimates of the concentration of effluent resulting in a specified level of effect and are determined either graphically or statistically from the concentration-response relationship determined from a toxicity test having a series of dilutions.

"Rapid screening test" means a screening toxicity test on one hundred percent effluent or some other high concentration of effluent in order to detect unanticipated increases in toxicity. Examples of rapid screening tests include twenty-four hour EPA acute tests, acute toxicity tests using rotifers produced from cysts, bacterial bioluminescence tests, and two-day life cycle tests with rotifers.

"Reasonable potential" under this chapter means that the department has determined, in accordance with 40 C.F.R. 122.44 (d)(v) and based on a whole effluent toxicity performance standard, that the effluent could cause in-stream toxicity in violation of WAC 173-201A-040(1).

"Species rotation" means the switching to a different toxicity test from the list in a discharge permit for each effluent monitoring sample according to a rotation schedule set by the department.

"Statistically significant" under this chapter means establishing that a difference in response between a control and an effluent concentration is likely due to toxicity and not variability. The statistical technique for making this determination shall be Fisher's Exact Test or a one-tailed hypothesis test specified or approved by the department. These hypothesis tests shall be conducted at the ninety-five percent confidence level although the department may approve tests at the ninety-nine percent confidence level if the statistical power of the test will not be adversely affected.

"Technology-based controls" means methods for the treatment, prevention, or control of pollutants such as best management practices, biological treatment, physical-chemical treatment, use of nontoxic process chemicals, secondary containment for spills, control of site run-on/runoff, equipment maintenance, equipment operation, implementing site-specific pollution prevention plans, and any other technique with the same goals.

"Toxicity identification/reduction evaluation" means the process for determining the effective control of effluent toxicity by identifying the toxicant and/or its source, and developing a method to reduce toxicity by source control or treatment.

"Toxicity test" means a direct measurement of the adverse effect of a substance in a controlled test using living organisms. In the

context of this rule, "toxicity test" and "whole effluent toxicity test" are synonymous.

"Whole effluent toxicity" means the total toxic effect of an effluent measured directly with a toxicity test so that the interactions of all toxicants present in the effluent are assessed.

"Whole effluent toxicity performance standard" means a level of effluent toxicity that is consistently so much lower than is necessary to meet state water quality standards (chapter 173-201A WAC) that no reasonable potential exists to violate the water quality standards. For acute toxicity, the performance standard is the median survival in one hundred percent effluent being equal to or greater than eighty percent and no individual test result showing less than sixty-five percent survival in one hundred percent effluent. For chronic toxicity, the performance standard is no chronic toxicity test demonstrating a statistically significant difference in response between the control and a test concentration equal to the acute critical effluent concentration. For permittees that are ineligible for an approved mixing zone, the performance standard will equal or be close to equal (in the case of acute toxicity) the water quality-based effluent toxicity limit.

"Whole effluent toxicity test" means a toxicity test on an effluent.

[Statutory Authority: Chapter 90.48 RCW and 40 C.F.R. 122.44. WSR 93-20-110 (Order 91-54), § 173-205-020, filed 10/6/93, effective 11/6/93.]

WAC 173-205-030 Applicability. The requirements in this chapter shall apply to all NPDES permits issued by the department of ecology (department).

(1) The department shall evaluate all NPDES permit applications in accordance with WAC 173-205-040 to determine if the discharge needs an effluent characterization for toxicity as described in WAC 173-205-050.

(2) In accordance with WAC 173-205-050 and 173-205-130, the department shall describe in the permit the circumstances under which whole effluent toxicity limits will be applied to the discharge in order to meet:

(a) The requirement for all known, available, and reasonable methods of prevention, control, and treatment of toxicants; or

(b) Appropriate water quality standards.

(3) The determination to require or not to require whole effluent toxicity characterization in a permit shall be explained in the fact sheet of the permit prepared pursuant to WAC 173-220-060.

(4) The department may delay effluent characterization for whole effluent toxicity for existing facilities that are under a compliance schedule in a permit, administrative order, or other legally enforceable mechanism to implement technology-based controls or to achieve compliance with water quality-based effluent limits.

(5) The department may require whole effluent toxicity testing or rapid screening testing as a condition of permit application, as a condition of an NPDES permit, or as a regulatory order.

(a) If an effluent characterization for whole effluent toxicity as described in WAC 173-205-050(1) has been conducted as a condition of permit application, then the permit issued in response to that application shall not contain a requirement for effluent characteriza-

tion provided that all determinations required by this chapter can be made to the department's satisfaction.

(b) If an effluent characterization for whole effluent toxicity which meets the requirements of WAC 173-205-050(1) has been conducted in a previous permit, permit application, or administrative order, then subsequent permits shall not contain a requirement for effluent characterization provided that all determinations required by this chapter can be made to the department's satisfaction and unless WAC 173-205-060 applies.

(6) The department may conduct or require permittees to conduct toxicity tests on ambient water or may use or require permittees to use ambient water as dilution water in order to facilitate the determination of compliance with WAC 173-201A-100.

(7) A toxicity test conducted on effluent samples taken by parties other than the permittee can be used to make any determination required by this chapter or in a permit issued in accordance with this chapter as long as all appropriate sampling, toxicity testing, and QA/QC requirements specified in the permit have been followed.

(8) The department shall require permittees that have not been assigned a whole effluent toxicity limit because of the determination in WAC 173-205-050 (2)(a), or 173-205-120(1) to conduct as a part of the application for permit renewal at least one toxicity test on a fish, an invertebrate, and any appropriate plant unless the permittee has been monitoring with rapid screening tests required in accordance with WAC 173-205-120(2).

(9) Permittees may conduct any toxicity test using a full dilution series provided that all of the testing and information requirements of this chapter and the permit are met, including using the statistical analysis specified in the permit.

[Statutory Authority: Chapter 90.48 RCW and 40 C.F.R. 122.44. WSR 93-20-110 (Order 91-54), § 173-205-030, filed 10/6/93, effective 11/6/93.]

WAC 173-205-040 Determining the need for effluent characterization. (1) A discharge from a facility is considered to have a risk for aquatic toxicity and to need an effluent characterization for acute and chronic whole effluent toxicity if the facility or discharge meet any of the following criteria:

(a) Uses, stores, produces as a product or waste, or transfers any hazardous substance listed in 40 C.F.R. 302.4 with a statutory code of 1 or 2 (referring to Sections 311 (b)(4) or 307(a) of the Clean Water Act) unless:

(i) The permittee demonstrates to the department's satisfaction that the facility is designed and managed so that these substances are kept physically separated at all times, including spills or any other accidental release, from any part of the wastewater collection, treatment, or discharge system; or

(ii) The amount of any hazardous substance at the facility is never more than the statutory reportable quantity listed in 40 C.F.R. 302.4;

(b) Discharges in its effluent any toxic pollutant listed in Appendix D of 40 C.F.R. Part 122 for which there are no water quality criteria for aquatic life protection listed in 40 C.F.R. 131.36 (b)(1) or WAC 173-201A-040(3);

(c) Belongs to an industry category identified in 40 C.F.R. Part 122, Appendix A;

(d) Is a municipal sewage collection and treatment system which receives a discharge from any industry category identified in 40 C.F.R. Part 403, Appendix C;

(e) Except for permittees with whole effluent toxicity limits or permittees that have no whole effluent toxicity limit because of the determination in WAC 173-205-120(1), any facility which exceeded the acute or chronic whole effluent toxicity performance standard within the last five years;

(f) Any facility with suspected toxicity because of apparent damage to aquatic biota; or

(g) Any other discharger that the department determines has the potential to discharge toxics in toxic amounts.

(2) The following types of discharges are excluded from requirements for whole effluent toxicity characterization unless subsection (1) of this section applies:

(a) Once-through noncontact cooling water without biocides;

(b) Drinking water treatment plant effluent;

(c) Dewatering of sand or gravel mining operations;

(d) Sump pump discharges of groundwater or rain water only;

(e) Construction dewatering;

(f) Discharges from fish hatcheries and other aquaculture;

(g) Seafood processors; or

(h) Any other discharge that the department determines does not have the potential to contain toxics in toxic amounts.

(3) A chronic whole effluent toxicity characterization is not necessary in any permit if the effluent has been or will be characterized for acute whole effluent toxicity and if the discharge receives at least one thousand to one dilution at the edge of a mixing zone assigned in accordance with WAC 173-201A-100.

[Statutory Authority: Chapter 90.48 RCW and 40 C.F.R. 122.44. WSR 93-20-110 (Order 91-54), § 173-205-040, filed 10/6/93, effective 11/6/93.]

WAC 173-205-050 Effluent testing for toxicity. (1) The department shall require dischargers meeting the risk definition of WAC 173-205-040(1) to characterize the effluent for toxicity during permit application or during the first year of the permit term.

(a) Each effluent sample during effluent characterization shall be tested for toxicity using multiple species which shall at a minimum include a fish, an invertebrate, and, if deemed appropriate by the department, a plant.

(b) The sampling frequency during effluent characterization and compliance monitoring shall be at least twice per year and sampling shall be timed to cover the seasonal extremes of the year such as wet-dry or cold-hot.

(c) The duration of an acute toxicity test performed for effluent characterization or compliance monitoring shall be forty-eight hours for an invertebrate and ninety-six hours for a fish.

(d) For effluent characterization and compliance monitoring, the department shall use toxicity tests published in 40 C.F.R. Part 136, in EPA toxicity test manuals, or those methods approved by the department considering the following criteria:

(i) The existence of a detailed written description of the test method;

(ii) Interlaboratory comparisons of the method;

(iii) Adequate testing with complex wastes such as wastewater;

(iv) Measurement of an effect that is clearly adverse to the production of the species such as reduced survival or growth, abnormal development, or failed reproduction; and

(v) Use of test organisms that represent taxonomic families native to the state.

(e) Toxicity testing for effluent characterization under this section, compliance monitoring as described in WAC 173-205-070, and additional monitoring as described in WAC 173-205-090 or 173-205-120 (2)(d) shall be performed by laboratories accredited by the department for the specific toxicity test in accordance with chapter 173-50 WAC.

(f) Upon request, the department may approve the performance of toxicity tests for effluent characterization or compliance monitoring for publicly owned treatment works discharging less than one-half million gallons per day and small businesses as defined in RCW 43.31.025(4) as effluent screening tests using one hundred percent effluent for the acute toxicity tests and the acute critical effluent concentration for the chronic toxicity tests.

(i) If an acute one hundred percent effluent screening test demonstrates less than eighty percent survival, the test shall be repeated as soon as possible on a fresh sample using the full dilution series test described in the permit or regulatory order.

(ii) The chronic screening tests shall be expected to have no statistically significant difference in response between the acute critical effluent concentration and the control using the method in Appendix H of EPA/600/4-89/001 or an equivalent method approved by the department, or the test shall be repeated as soon as possible on a fresh sample using the full dilution series test described in the permit or regulatory order. The chronic effluent screening tests shall also meet the chronic statistical power standard.

(2) Effluent characterization shall be used to establish:

(a) Whether a reasonable potential under 40 C.F.R. 122.44 (d)(v) for acute or chronic toxicity exists which would require a whole effluent toxicity limit.

(i) If at the end of effluent characterization the median survival in one hundred percent effluent is less than eighty percent, or if any individual test result shows less than sixty-five percent survival in one hundred percent effluent, then a reasonable potential for acute conditions in the receiving water has been demonstrated, and the whole effluent acute toxicity limit described in WAC 173-205-070 shall be applied to the discharge.

(ii) If during effluent characterization any chronic toxicity test using the method in Appendix H of EPA/600/4-89/001 or an equivalent method approved by the department demonstrates a statistically significant difference in response between the control and the acute critical effluent concentration, then a reasonable potential for chronic conditions in the receiving water has been demonstrated, and the whole effluent chronic toxicity limit described in WAC 173-205-070 shall be applied to the discharge.

(iii) If the acute critical effluent concentration is unknown during effluent characterization, all chronic toxicity tests shall determine the NOEC for comparison to the acute critical effluent concentration when it becomes available.

(A) The determination of these NOECs shall comply with the chronic statistical power standard.

(B) If effluent characterization is completed and neither the acute critical effluent concentration nor the chronic critical effluent concentration is known, then the department may require the permittee to continue the toxicity testing as conducted in effluent characterization except using single species tests rather than multiple species tests.

(b) The permittee shall analyze the toxicity test data during effluent characterization to establish a baseline toxicity level by calculating appropriate point estimates such as the LC_{50}, the IC_{50}, or the EC_{50}.

[Statutory Authority: Chapter 90.48 RCW and 40 C.F.R. 122.44. WSR 93-20-110 (Order 91-54), § 173-205-050, filed 10/6/93, effective 11/6/93.]

WAC 173-205-060 Additional effluent characterizations. (1) A permittee that has not been assigned a whole effluent toxicity limit because of attaining the performance standards described in WAC 173-205-050 (2)(a) or 173-205-120(1) will not be required to conduct a new effluent characterization in accordance with WAC 173-205-050(1) unless the department determines that:

(a) The permittee has made changes to processes, materials, or treatment that could result in an increase in effluent toxicity.

(b) A municipal sewage collection and treatment system has experienced the addition of any new source as defined in 40 C.F.R. 403.3(k) that belongs in any industry category identified in 40 C.F.R. Part 403, Appendix C and cannot demonstrate that the new source is nontoxic or that the pretreatment program and local limits are adequate to control toxicity from the new source.

(c) The average dry weather flow volume has changed by ten percent or more due to changes in plant processes, production changes, or increases in the number of users. Changes in flow volume due to water conservation measures would not indicate a need for a new characterization unless this resulted in a final effluent containing a higher concentration of potentially toxic pollutants.

(2) It is the responsibility of the permittee to demonstrate to the department's satisfaction that no change has occurred to the facility which would cause or increase effluent toxicity.

(a) The permittee must make this demonstration as soon as possible after any change listed in subsection (1) of this section has occurred but under no circumstances later than the time of application for permit renewal.

(b) Toxicity testing by the permittee shall be accepted as a demonstration that such facility changes have not increased effluent toxicity providing that the department has approved the number and types of toxicity tests performed.

(c) The department may accept other demonstrations that toxicity has not increased based on other scientific disciplines such as chemistry.

(3) An increase in effluent toxicity is assumed to have occurred and a new effluent characterization shall be required if toxicity in excess of a performance standard has been demonstrated during:

(a) Toxicity testing conducted in accordance with WAC 173-205-030(8); or

(b) Toxicity testing conducted in response to a rapid screening test as required by WAC 173-205-120 (2)(d).

(4) A permittee does not need a new effluent characterization for acute or chronic toxicity if the discharge is being routinely monitored for compliance with a whole effluent toxicity limit using species rotation. This determination only applies to the type of toxicity (acute or chronic) covered by the whole effluent toxicity limit.

(5) A permittee may be required to further characterize effluent toxicity if a new toxicity test method has been approved pursuant to WAC 173-205-050 (1)(d) that, in the opinion of the department, should replace one of or supplement an existing toxicity test in the permit because it:

(a) May be more sensitive to effluent toxicity; or

(b) Has a closer ecological or taxonomic relationship to receiving water species.

(6) Only the new toxicity test method is needed for effluent characterization in the case of a new toxicity test being approved.

[Statutory Authority: Chapter 90.48 RCW and 40 C.F.R. 122.44. WSR 93-20-110 (Order 91-54), § 173-205-060, filed 10/6/93, effective 11/6/93.]

WAC 173-205-070 Monitoring for compliance with whole effluent toxicity limits. (1) A discharge is in compliance with the narrative water quality standard for acute toxicity when the most recent acute toxicity test has shown no statistically significant difference in response between the acute critical effluent concentration and a control.

(a) Acute toxicity testing shall be performed using one hundred percent effluent, the acute critical effluent concentration, and a control.

(b) The acute critical effluent concentrations in a whole effluent toxicity test shall be compared to the control using the method in Appendix H of EPA/600/4-89/001 or an equivalent method approved by the department.

(c) If a statistically significant difference in response is determined between the control and the acute critical effluent concentration in an acute toxicity test, then the effluent has failed the test for compliance with the whole effluent acute toxicity limit and the permittee shall immediately begin the process described in WAC 173-205-090.

(d) The compliance test for acute toxicity shall be considered to be a maximum daily discharge permit limitation.

(2) A discharge is in compliance with the narrative water quality standard for chronic toxicity when the most recent chronic toxicity test has shown no statistically significant difference in response between the chronic critical effluent concentration and a control.

(a) Chronic toxicity testing shall be performed using the acute critical effluent concentration, the chronic critical effluent concentration, and a control.

(b) The chronic critical effluent concentrations in a whole effluent toxicity test shall be compared to the control using the method in Appendix H of EPA/600/4-89/001 or an equivalent method approved by the department.

(c) If a statistically significant difference in response is determined between the control and the chronic critical effluent concentration in a chronic toxicity test, then the effluent has failed the test for compliance with the whole effluent chronic toxicity limit and the permittee shall immediately begin the process described in WAC 173-205-090.

(d) The compliance test for chronic toxicity shall be considered to be a maximum daily discharge permit limitation.

(3) During compliance monitoring, the one hundred percent effluent concentration in an acute test and the acute critical effluent concentration in a chronic test shall be performed in order to assess the attainment of the performance standards in accordance with WAC 173-205-120(1).

(4) Toxicity tests conducted for monitoring for compliance with whole effluent toxicity limits shall meet, as appropriate, the acute or chronic statistical power standards. If a whole effluent toxicity test does not meet appropriate statistical power standard, then the effluent shall immediately be resampled and the toxicity test repeated with the number of replicates increased in order to meet the statistical power standard.

(5) The permittee shall provide the department with all information and records required in the permit in order to evaluate toxicity test results to determine their adequacy for effluent characterization, compliance monitoring, effluent screening tests, or rapid screening tests.

(a) The result of the most recent reference toxicant test conducted by the laboratory for that toxicity test method shall accompany each whole effluent toxicity test result.

(b) Every reference toxicant test shall be conducted on a minimum of five dilutions.

(c) The response in all replicates at every effluent concentration and the control shall be reported for all tests analyzed by hypothesis testing so that the department can check for compliance with statistical power standards and for anomalous test results which should not be used for the compliance determinations in this chapter.

[Statutory Authority: Chapter 90.48 RCW and 40 C.F.R. 122.44. WSR 93-20-110 (Order 91-54), § 173-205-070, filed 10/6/93, effective 11/6/93.]

WAC 173-205-080 Samples for whole effluent toxicity testing. (1) All samples taken for whole effluent toxicity testing shall be handled as specified in the permit and in any EPA manuals referenced in the permit.

(a) No attempts shall be made before or during the whole effluent toxicity test to modify the sample to remove or otherwise change any toxicant except as provided in subsection (3) of this section.

(b) Except as provided in subsection (3) of this section, no attempts shall be made before or during the whole effluent toxicity test to adjust the hardness, dissolved oxygen, pH, or any other physical or chemical property of the sample, dilution water, or test solutions except as required in the toxicity test method, in the permit, or in appropriate EPA manuals.

(c) For those permittees who received permits prior to the effective date of this chapter, the department may approve in writing the

request of a permittee to modify samples, dilution water, or test solutions as long as such modifications meet the intent of this chapter.

(2) Except as provided in subsection (3) of this section, the department shall require that samples for whole effluent toxicity testing be taken just before the chlorinator for dischargers who meet all of the following:

(a) Add chlorine to treated effluent for the purpose of disinfection;

(b) Have received effluent limits based on the water quality criteria for chlorine; and

(c) Are developing or implementing plans to achieve compliance with the chlorine limits.

(3) If any permittee has begun implementing a plan to install dechlorination, then the sample may, as specified by the department, be chemically dechlorinated by a similar method before whole effluent toxicity testing.

(4) The whole effluent toxicity test shall be run on an unmodified sample of final effluent if the effluent can meet effluent limits based on the water quality criteria for chlorine.

[Statutory Authority: Chapter 90.48 RCW and 40 C.F.R. 122.44. WSR 93-20-110 (Order 91-54), § 173-205-080, filed 10/6/93, effective 11/6/93.]

WAC 173-205-090 Response to noncompliance with whole effluent toxicity limits. (1) If a toxicity test result fails the compliance test described in WAC 173-205-070, then the permittee shall take a new sample as soon as possible for retesting and begin additional monitoring unless the permittee chooses the option in subsection (4) of this section.

(a) If the noncompliance was with an acute toxicity limit, the additional monitoring shall be conducted weekly for four weeks using the same toxicity test as in the failed compliance test or shall be conducted on the next four discharge events in the case of an intermittent discharge.

(b) If the noncompliance was with a chronic toxicity limit, the additional monitoring shall be conducted monthly for three months using the same toxicity test as in the failed compliance test or shall be conducted on the next three discharge events in the case of an intermittent discharge.

(c) This additional monitoring shall be conducted the same as in effluent characterization and shall determine the LC_{50}, IC_{50}, or EC_{50}, as appropriate, and measure compliance with the permit limit.

(d) If the permittee believes that the compliance test failure will be identified by the department as an anomalous test result in accordance with WAC 173-205-070 (5)(c), the permittee may send the department notification with the compliance test result that the compliance test result might be anomalous and that the permittee intends to take only one additional sample for toxicity testing and wait for notification from the department before completing the additional monitoring required in this subsection.

(i) The notification must identify the reason for considering the compliance test result to be anomalous.

(ii) The permittee shall take the additional sample and retest as soon as possible after receiving the compliance test result.

(iii) The additional test result shall replace the compliance test result upon determination by the department that the compliance test result was anomalous.

(iv) The permittee shall complete all of the additional monitoring required by this subsection as soon as possible after notification by the department that the compliance test result was not anomalous.

(v) If the additional sample fails the compliance test, then the permittee shall proceed without delay to complete all of the additional monitoring required by this subsection.

(e) The department may determine any compliance test result to be anomalous regardless of whether it was accompanied by permittee notification that it may be anomalous.

(f) The department may notify a permittee to take another sample for toxicity testing because a compliance test result was anomalous and could not be used to determine compliance in accordance with this section.

(2) Any permittee failing the compliance test for a whole effluent toxicity limit shall take all reasonable actions to achieve compliance including conducting a toxicity identification/reduction evaluation as defined in WAC 173-205-100.

(3) The discharger shall return to the original monitoring frequency after conducting the additional monitoring described in subsection (1) of this section.

(4) The permittee may proceed directly to a toxicity identification/reduction evaluation and not perform the additional testing.

[Statutory Authority: Chapter 90.48 RCW and 40 C.F.R. 122.44. WSR 93-20-110 (Order 91-54), § 173-205-090, filed 10/6/93, effective 11/6/93.]

WAC 173-205-100 Toxicity identification/reduction evaluations. (1) If only the routine compliance monitoring toxicity test which initiated the additional monitoring described in WAC 173-205-090 fails the compliance test, then the toxicity can be considered as transient and the discharger shall:

(a) Search all recent facility records which might explain the transient toxicity (operating records, monitoring results, inspection records, spill reports, weather records, production records, etc.); and

(b) Submit a report to the department on the possible causes and preventive measures for the transient toxicity within thirty days of the last additional sample.

(2) If any toxicity test fails the compliance test described in WAC 173-205-070 during the additional monitoring conducted in accordance with WAC 173-205-090(1), then the permittee shall submit a plan to the department within sixty days of the last additional sample for a toxicity identification/reduction evaluation.

(a) As a part of this plan, the permittee may request that the department allow up to six months before beginning the investigation outlined in the EPA manuals for facility personnel to attempt to control the most likely sources of toxicity through efforts such as changes in plant operation, replacement of a toxic material used in the facility, or improvement of best management practices.

(i) The department shall approve the request in writing.

(ii) The department approval may be sent to the permittee before completion of the review of the toxicity identification/reduction evaluation plan.

(b) The toxicity identification/reduction evaluation plan shall be based on procedures in the latest versions of the EPA guidance documents for conducting toxicity reduction evaluations or toxicity identification evaluations.

(i) The toxicity identification/reduction evaluation plan need not include any procedure from the EPA manuals that is not necessary to the goal of controlling the discharge of whole effluent toxicity by the permittee.

(ii) The department may approve any modifications or additions to the EPA procedures that will improve the ability to identify or reduce toxicity.

(c) The permittee shall submit to the department a toxicity identification/reduction evaluation plan revised in accordance with department comments within thirty days after receipt of department comments.

(3) The permittee shall implement the toxicity identification/reduction evaluation plan immediately upon notification by the department of plan approval.

(4) The department may allow a reduction in compliance monitoring for whole effluent toxicity limits during a toxicity identification/reduction evaluation if:

(a) Effluent toxicity is being regularly measured and reported to the department; and

(b) The department determines that the toxicity identification/reduction evaluation is being conducted in a timely manner.

[Statutory Authority: Chapter 90.48 RCW and 40 C.F.R. 122.44. WSR 93-20-110 (Order 91-54), § 173-205-100, filed 10/6/93, effective 11/6/93.]

WAC 173-205-110 Interruption of a toxicity identification/reduction evaluation. (1) If, in performing a toxicity identification/reduction evaluation, four consecutive acute or chronic toxicity samples taken over at least one month are not sufficiently toxic to perform the toxicity identification/reduction evaluation, then the department may approve the interruption of the toxicity identification/reduction evaluation and require that:

(a) The permittee returns to the monitoring frequency specified in the permit.

(b) Sufficient sample volume be taken each time to allow the lab to perform both a toxicity test and begin a toxicity identification/reduction evaluation.

(c) The extra sample shall be stored at four degrees Celsius in the dark while the toxicity test is being performed.

(d) A toxicity identification/reduction evaluation shall begin as soon as the whole effluent toxicity test demonstrates noncompliance with the limit.

(e) Samples may be discarded from storage after completion of the toxicity test if the whole effluent toxicity limit was not violated.

(2) If toxicity testing shows compliance with whole effluent toxicity limits for one year after interruption of the toxicity identification/reduction evaluation, then the permittee may cease taking the extra sample.

[Statutory Authority: Chapter 90.48 RCW and 40 C.F.R. 122.44. WSR 93-20-110 (Order 91-54), § 173-205-110, filed 10/6/93, effective 11/6/93.]

WAC 173-205-120 Permit limit removed for attainment of a whole effluent toxicity performance standard. (1) Whole effluent toxicity limits assigned pursuant to WAC 173-205-050(2) are eligible for removal upon permit renewal if:

(a) The permittee has demonstrated compliance with the whole effluent toxicity performance standard associated with that limit for a minimum of three consecutive test years following effluent characterization or for an entire subsequent permit term; and

(b) The permittee has not made any changes within the last three years which would otherwise require additional effluent characterization pursuant to WAC 173-205-060.

(2) The department may condition the nonassignment of a whole effluent toxicity limit for a permittee that has attained a performance standard described in WAC 173-205-050 (2)(a), or subsection (1) of this section on routine monitoring with a rapid screening test.

(a) Before making such condition, the department shall consider the potential for treatment system upsets, control equipment failures, spills, accidental releases to the wastewater system, and any other event which could result in a toxic discharge.

(i) Chemical monitoring may be required to assess increases in effluent toxicity if it:

(A) Can account for the potential sources of toxicity; and

(B) Is associated with water quality-based effluent limits or any other permit mechanism that requires a response to increases in effluent toxicity.

(ii) Rapid screening tests shall be required if the department determines there is the potential for an event at the facility which could result in a toxic discharge that would otherwise go unnoticed.

(b) Rapid screening tests for acute toxicity shall be expected to have a maximum mortality proportion of twenty hundredths in one hundred percent effluent.

(i) The mortality proportion shall be calculated by subtracting the number of test organisms living in one hundred percent effluent at the end of the test from the number of test organisms living in the control and dividing the result by the number of test organisms living in the control.

(ii) The one hundred percent effluent test concentration and the control shall have equal numbers of test organisms.

(c) Rapid screening tests for chronic toxicity shall be expected to have no statistically significant difference in response between the acute critical effluent concentration and the control using the method in Appendix H of EPA/600/4-89/001 or an equivalent method approved by the department. Rapid screening tests for chronic toxicity must meet the chronic statistical power standard.

(d) Whenever a rapid screening test result fails to achieve the standard of (b) or (c) of this subsection, the permittee shall be required to immediately retest with all of the acute or chronic toxicity tests used in the last permit with whole effluent toxicity testing.

(e) The results of the acute or chronic toxicity tests conducted in response to a rapid screening test shall be evaluated by the department to determine the need for new whole effluent toxicity charac-

terization requirements in the next permit or the need for immediate administrative orders to implement the regulatory process which begins in WAC 173-205-090.

(f) All rapid screening tests shall be performed by laboratories accredited by the department in accordance with chapter 173-50 WAC.

[Statutory Authority: Chapter 90.48 RCW and 40 C.F.R. 122.44. WSR 93-20-110 (Order 91-54), § 173-205-120, filed 10/6/93, effective 11/6/93.]

WAC 173-205-130 Performance-based limits for acute whole effluent toxicity. (1) In accordance with RCW 90.48.520 and 40 C.F.R. 122.44(e), the department shall evaluate all applications for an NPDES permit to determine whether the applicant is applying all known, available, and reasonable methods of prevention, control, and treatment of toxicants.

(2) The department may place the whole effluent toxicity performance standard for acute toxicity into permits as a limit on a case-by-case basis pursuant to 40 C.F.R. § 125.3 (d)(3).

(a) In determining compliance with an acute whole effluent toxicity limit based on the performance standard, a minimum of three toxicity tests shall be used in calculating the median.

(b) For the first two toxicity tests conducted to determine compliance with the performance standard-based acute whole effluent toxicity limit, compliance shall be determined as a minimum of sixty-five percent survival in one hundred percent effluent.

(3) The department may establish performance-based limits for whole effluent toxicity for an entire category of dischargers. Any such limit applied to an entire category of dischargers shall be accomplished by rule making.

[Statutory Authority: Chapter 90.48 RCW and 40 C.F.R. 122.44. WSR 93-20-110 (Order 91-54), § 173-205-130, filed 10/6/93, effective 11/6/93.]