NO. 45609-5-II

COURT OF APPEALS, DIVISION II OF THE STATE OF WASHINGTON

PUGET SOUNDKEEPER ALLIANCE; RE SOURCES FOR SUSTAINABLE COMMUNITIES; and FRIENDS OF THE EARTH,
Petitioners,
v.

STATE OF WASHINGTON, POLLUTION CONTROL HEARINGS BOARD, and DEPARTMENT OF ECOLOGY,
Respondents.

REPLY BRIEF OF PUGET SOUNDKEEPER ALLIANCE, RE SOURCES FOR SUSTAINABLE COMMUNITIES, and FRIENDS OF THE EARTH

SMITH & LOWNEY PLLC
Richard Smith, WSBA # 21788
Elizabeth Zultoski, WSBA # 44988
2317 East John Street
Seattle, Washington 98112

Attorneys for Puget Soundkeeper Alliance, RE Sources for Sustainable Communities, and Friends of the Earth

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K Transcript of Deposition of Randall Marshall, *Puget Soundkeeper Alliance et al., v. State of Washington, et al.,* July 27, 2012, pp. 203-204; AR000514-000515 (Ex. 4 to Soundkeeper's Motion for Summary Judgment) (additional excerpts)

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I. INTRODUCTION

The Court should reverse the Pollution Control Hearing Board's order purportedly deferring to the Department of Ecology's improper and unsupported exercise of discretion to issue a Clean Water Act discharge permit that allows a polluter to cause toxicity in waters of the state contrary to the explicit and unambiguous mandate of state law. To do otherwise would endorse an absurd interpretation of the whole effluent toxicity ("WET") regulation, WAC Ch. 173-205; Respondents and the Board would have this Court nonsensically rule that a violation of what the regulation unambiguously defines as a "maximum daily discharge *permit limitation*" need not be considered a permit violation. WAC 173-205-070(1)(d) (emphasis added). Not only is the better interpretation offered by Soundkeeper consistent with the explicit regulatory requirement for WET effluent limitations, it conforms to the broad structure of the federal and state law concerning National Pollutant Discharge Elimination System ("NPDES") permit regulation of toxic pollutants and serves the underlying purpose of WAC Ch. 173-205.

The Board's order and the positions taken by Respondents reflect an erroneous interpretation or application of the law that is inconsistent with an agency rule, and their assertions about the basis of deference to Ecology's regulatory interpretation rest not on any guidance statement or

agency explanation. *Port of Seattle v. Pollution Control Hearings Bd.*, 151 Wn.2d. 568, 587-588, 90 P.3d 659 (2004). Instead, they would have this Court defer to unclear and contradictory statements found only in the deposition testimony of a single agency staff member. There is no substantial evidence that Ecology has demonstrated a rational basis for the inconsistency of its permit language with the applicable regulation. *Id.*

II. ARGUMENT

A. The Board's order on summary judgment and the permit language it considered are appropriately before the Court.

The Court should reject Ecology's odd assertion that because Ecology attempted to comply with the very Pollution Control Hearings Board order appealed here by reissuing the permit with modified language, the Court should not evaluate the permit language considered by the Board in issuing its ruling. Respondent Department of Ecology's Response to Petitioners' Opening Brief ("Ecy's Brief") at 15 – 16.

The Board's order that Soundkeeper appeals now is an order on summary judgment. Thus, the Court "must overlay the APA standard of review with the summary judgment standard." *Verizon Nw., Inc. v. Wash. Employment Security Dep't,* 164 Wn.2d 909, 916, 194 P.3d 255 (2008). The Court is to review the decision directly, based on the record before the Board. *Cmty. Ass'n for Restoration of the Env't v. Dep't of Ecology,* 149

Wn. App. 830, 840, 205 P.3d 950 (2009); *Alpine Lakes Prot. Soc'y v. Dep't of Natural Res.*, 102 Wn. App. 1, 14, 979 P.2d 929 (1999).

The Board's order is based on review of the only permit language in the record – that of the original permit. That Ecology modified this permit language after the Board's order is not part of the record, and no modified permit language is part of the record. The modification is, in fact, totally irrelevant to the issues presented to the Court. The Court must base its decision on the same record that the Board had before it, and take a fresh look at the issues presented to the Board using the same summary judgment standard that the Board used.

B. The WET regulation unambiguously mandates that a compliance test failure be considered a permit limit violation.

1. The text of WAC Ch. 173-205 clearly contemplates that a compliance test failure will be a permit violation.

Adopted by Ecology in 1993, WAC Ch. 173-205 sets forth a comprehensive process to include WET testing-based effluent limitations in NPDES permits where necessary and appropriate to effect the narrative water quality criteria for toxicity, which prohibits the introduction into waters of toxic substances that "have the potential" to cause toxicity. WAC Ch. 173-205; WAC 173-201A-240(1); AR000501:5 – 24, App. F. This WET regulation provides instruction to NPDES permit writers on

how to convert the narrative water quality criterion prohibiting toxicity, WAC 173-201A-240(1), into an objective, statistically-based standard by which it may be determined whether a permittee complies with or violates the criterion. WAC 173-205-030 through -070; AR000479:9 – 16, App. F; AR000501:5 –AR000524, App. F.

The regulation applies to all NPDES permits (and only to NPDES permits), requiring first a determination whether a discharge lies within a category considered to potentially threaten aquatic toxicity. WAC 173-205-030(1); WAC 173-205-040. For discharges meeting risk criteria, WET testing for effluent characterization is then required. WAC 173-205-050(1). If effluent characterization shows a reasonable potential for the discharge to cause or contribute to a violation of the narrative toxicity water quality criteria, WAC 173-201A-240(1), then an effluent limitation on WET must be included in the NPDES permit for the discharge. WAC 173-205-050(2)(a); 40 C.F.R. § 122.44(d)(1)(v); *see also* AR000448, App. E (flow chart in permit writers' manual).

For acute WET, the regulation explicitly describes this effluent limitation:

> (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 [Ecology].
>
> (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**.

WAC 173-205-070(1) (emphasis added).

Soundkeeper respectfully suggests that this regulation could not be clearer that a failure of a WET compliance test must be counted as a violation of the NPDES permit containing it. Under WAC 173-205-070(1)(c), a statistically significant response between a control and the acute critical effluent concentration WET tests means that the effluent "has failed the test for compliance with the whole effluent toxicity limit."[1] This test for compliance is "a maximum daily discharge permit limitation." WAC 173-205-070(1)(d). Respondents cannot offer any

[1] "Statistically significant" is precisely defined at WAC 173-205-020.

persuasive argument to distinguish between failing to comply with a "permit limitation" and violating a permit – there is none. A permit cannot authorize a discharge that fails this WET compliance test because a failure indicates the discharge is not "in compliance with the narrative water quality standard for acute toxicity." WAC 173-205-070(1); WAC 173-201A-510(1) (NPDES permits "must be conditioned so the discharges authorized will meet the water quality standards"); WAC 173-220-130(1)(b).

Here, "failing to comply" can mean nothing but "violating." When a discharge fails an acute WET compliance test, it has failed to meet "a maximum daily discharge permit limitation." This is a water quality-based effluent limitation included in NPDES permits to ensure discharges "will meet the water quality standards." WAC 173-201A-510(1); *see also,* 40 C.F.R. § 122.44(d)(1)(v). Compliance is entirely binary—a discharge complies with an effluent limitation and water quality standard, or it does not. AR000486:18 – 24. This is nothing like the headlights case cited by BP. Brief of Respondent BP West Coast Products LLC ("BP's Brief") at 27 (citing *Berendt v. Young*, 7 Wn. App. 299, 304, 499 P.2d 77 (1972)). There is no proper analogy between interpretation of a law requiring cars to use low beams in some circumstances and one intended to implement a strict prohibition on the toxic effects of discharges. A WET compliance

test is more like a speed limit, which the regulation provides the means of calculating and expressing. This comports with WAC 173-220-150(1)(c), which explains, "[a]ny discharge of any pollutant ... at a level in excess of that identified and authorized by the permit shall constitute a violation of the terms and conditions of the permit."

Because the regulation is clear and unambiguous, the Court need not look any farther, speculate as to Ecology's intent, or provide deference to Ecology's post-hoc interpretations and litigation positions. *See Mader v. Health Care Auth.*, 149 Wn.2d 458, 473, 70 P.3d 931 (2003) ("If a regulation is unambiguous, intent can be determined from the language alone, and we will not look beyond the plain meaning of the words of the regulation."); *and see ZDI Gaming, Inc. v. Wash. State Gambling Comm'n*, 151 Wn. App. 788, 806, 214 P.3d 938 (2009).

2. The broad structure of WAC 173-205 and its role in the NPDES permitting scheme indicates that violations of "compliance tests" and "maximum daily discharge permit limitations" must be permit violations.

In the NPDES permit context, the Clean Water Act requires strict compliance with water quality standards at all times. 33 U.S.C. § 1311(b)(1)(C); *Oklahoma v. Envtl. Prot. Agency*, 908 F.2d 595, 613 (10th Cir. 1990), *rev'd on other grounds sub nom. Arkansas v. Oklahoma*, 503 U.S. 91 (1992). An acute WET effluent limitation included in an NPDES

permit under WAC 173-205-070(1) represents the conversion of a narrative water quality standard for toxicity into an objective, statistical water quality-based effluent limitation tailored for the particular regulated discharge. AR000500:16 – AR000501:12, App. F. When a discharge fails the statistical WET test for compliance, it is not "in compliance with the narrative water quality standard for acute toxicity," and this non-compliance is strictly prohibited. WAC 173-205-070(1); 33 U.S.C. § 1311(b)(1)(C); WAC 173-201A-510(1); WAC 173-220-130(1)(b); AR 501:21 – 24, App. F. Rather than accounting for a permittee's diligence in responding to test results, to determine compliance with WAC 173-201A-240(1), *the only relevant question* (assuming valid testing) is whether "the most recent acute toxicity test has shown no statistically significant difference in response between the acute critical effluent concentration and a control." WAC 173-205-070(1); *see, e.g., In the Matter of Am. Cynamid Co., Santa Rosa Plant*, 1993 EPA App. LEXIS 33, *19 – 20, 4 E.A.D. 790 (EPA Envt'l Appeals Bd. Sept. 27, 1993) (interpreting similar state WET law and upholding NPDES permit condition imposing WET effluent limitation in which a single failed WET test is a permit violation).

Contrary to Respondents' protests, there is no inconsistency whatsoever in having an NPDES permit both strictly prohibit certain discharges, thus providing a bright line between compliance and violation,

and provide additional requirements triggered by a violation to help guide a permittee back into compliance. The WET regulation indicates failure of a WET compliance test is a violation of a maximum daily discharge permit limit and that such failure also imposes follow-up retesting and toxicity evaluation requirement "to achieve compliance." WAC 173-205-070(1); WAC 173-205-090; AR000514:11 – AR000515:14, App. F.

It is normal for NPDES permits to include both bright line effluent limits to determine compliance as well as instructions to the permittee on how to restore compliance in case of violation. For instance, the permit at issue includes the following generally-applicable condition:

> The Permittee must take the following actions when it violates or is unable to comply with any permit condition:
>
> a. Immediately take action to stop, contain, and cleanup unauthorized discharges or otherwise stop the noncompliance and correct the problem.
>
> b. If applicable, immediately repeat sampling and analysis. Submit the results of any repeat sampling to Ecology within thirty (30) days of sampling.

AR000677, App. L; *see also* AR000682 ("Duty to Mitigate") and AR000683 ("Plans for Maintaining Adequate Capacity"), App. L. The retesting and reporting requirements triggered by violation of the acute WET limit, found at WAC 173-205-090 and -100, and in the permit (AR000684-AR000686, App. H), are essentially these same instructions –

to retest and to fix the problem – only with explication for adaption to WET. Contrary to BP's argument, there is nothing improper about a regulation or NPDES permit condition that identifies an event as an enforceable violation, and provides instructions to the permittee about how to respond to the violation and approach its correction. BP Brief at 34.

3. The underlying purpose of the WET regulation is furthered by Soundkeeper's interpretation.

The purpose of the WET regulation, WAC Ch. 173-205, is to derive WET effluent limitations for inclusion in NPDES permits to implement the mandates of state and federal law. WAC 173-205-010. The explicit mandates of state and federal water pollution control law concerning control of toxic pollution discharges are certainly furthered by an interpretation of WAC 173-205-070(1) that strictly prohibits discharges with demonstrated toxic effects.

The underlying provisions of state law could hardly be clearer in their command that discharges causing toxicity be strictly prohibited:

> Toxic substances **shall not be introduced** above natural background levels in waters of the state which have the **potential** either singularly or cumulatively to adversely affect characteristic water uses, **cause acute or chronic toxicity** to the most sensitive biota dependent upon those waters, or adversely affect public health, as determined by the department.

WAC 173-201A-240(1) (emphasis added).

This regulatory water quality criterion reflects an even more strongly worded statutory prohibition:

> **In no event** shall the discharge of toxicants be allowed that would violate any water quality standard, including toxicant standards, sediment criteria, and dilution zone criteria.

RCW 90.48.520 (emphasis added).

Notably, these prohibitions do not exempt discharges that fail compliance tests for toxicity during an initial test, or so long as polluters retest and evaluate toxicity, as Respondents would have the Court read into the law.

Federal law includes a similar clear prohibition on even singular discharges causing toxicity. Not only does the Clean Water Act, in its text and regulations, require that NPDES permits ensure against discharges that would violate water quality standards, but in its Section 101 declares that "it is the national policy that the discharge of toxic pollutants in toxic amounts be prohibited." 33 U.S.C. § 1251(a)(3); 33 U.S.C. § 1311(b)(1)(C); 40 C.F.R. § 122.44(d); *Arkansas*, 503 U.S. at 105. Congress was serious about this policy and intended that it be implemented quickly. *Hercules, Inc. v. Envtl. Prot. Agency*, 598 F.2d 91, 130 (D.C. Cir. 1978).

Soundkeeper respectfully submits that its interpretation of WAC Ch. 173-205, which would require NPDES permits make every exceedance of a WET test for "compliance with the narrative water quality standard for acute toxicity" count as a permit violation, is the most consistent with these statutory and regulatory prohibitions. WAC 173-205-070(1). This interpretation is the only method that ensures NPDES permits do not authorize toxic discharges or allow a permittee to violate the water quality standard for toxicity.

4. WAC 173-205 must be interpreted to require BP to comply with the acute WET limit.

Contrary to BP's position, WAC 173-205-090(2) cannot be read to exempt BP from complying with the acute WET limit when actions it takes are insufficient for compliance. *See* BP Brief at 34-5. Water-quality based effluent limitations, such as the acute WET limit that determines compliance with the water quality standard for acute toxicity,[2] are the bedrock protection of Washington's waters where technology-based standards are insufficient to protect water quality. *See PUD No. 1 of Jefferson County v. Wash. Dep't of Ecology*, 511 U.S. 700, 704 (1994) ("state water quality standards provide a supplementary basis . . . so that numerous point sources, despite individual compliance with effluent limitations, may be further regulated to prevent water quality from falling

[2] WAC 173-205-070(1).

below acceptable levels") (internal quotations omitted); *and see Defenders of Wildlife v. Browner*, 191 F.3d 1159, 1163 (9th Cir. 1999) (The CWA confers "a specific obligation to require that level of effluent control which is needed to implement existing water quality standards without regard to the limits of practicability.").

WAC 173-205-090(2) cannot be interpreted in a manner that allows BP to take actions that are insufficient to comply with a water-quality standard. Rather, the regulation must be interpreted to uphold WAC 173-205's reliance on the acute WET test as the means to implement the state prohibition of toxic discharges. *See Dep't of Labor & Indus. v. Tyson Foods, Inc.*, 143 Wn. App. 576, 582, 178 P.3d 1070 (2008) ("Our goal in interpreting an administrative regulation is to achieve a harmonious total statutory scheme and avoid conflicts between different provisions.") (internal quotations omitted). Accordingly, BP must be required to take additional and sufficient action to comply with the water-quality toxicity standard or stop discharging effluent until compliance is assured. *See Envtl. Protection Agency v. Nat'l Crushed Stone Ass'n*, 449 U.S. 64, 83 (1980) ("As we see it, Congress anticipated that [certain CWA] regulations would cause economic hardship and plant closings: the question . . . is not what a court thinks is generally appropriate to the regulatory process; it is what Congress intended for *these* regulations.")

(internal quotations omitted and emphasis in original). To do this, BP's permit must make a failure of the acute WET test a violation of the permit.

C. Alternative compliance schemes are not entitled to deference.

1. Ecology's interpretation of WAC 173-205 conflicts with the regulation's plain language.

This Court should afford no deference to the position of Ecology or the order of the Board. First, Ecology's interpretation of WAC 173-205 and the significance to NPDES permit compliance of an acute WET compliance test failure warrants no deference because, as discussed above, it conflicts with the regulation's plain language. *Cmty. Ass'n for Restoration of the Env't*, 149 Wn. App. at 840, 205 P.3d 950. The regulation defines the compliance test as "a maximum daily discharge permit limitation," and there is no way that a discharger can violate a "permit limitation" without being considered to have violated the permit itself. WAC 173-205-070(1)(d); WAC 173-220-150(1)(c) (pollutant discharge at level exceeding that authorized by permit is a permit violation). An agency may not interpret its regulations in a way that nullifies the effective intent or wording of a regulation. *Bahramizadeh v. U.S. Immigration and Naturalization Service*, 717 F.2d 1170, 1173 (7th Cir. 1983)

2. There is no substantial evidence that Ecology exercised its technical expertise as the Board asserts.

Second, the Court should recognize that the Board's deference to what it represents as Ecology's exercise of technical expertise is mistaken because there is no substantial evidence that Ecology actually made the science-based determination that the Board attributes to it. RCW 34.05.570(3)(e); *Cmty. Ass'n for Restoration of the Env't*, 149 Wn. App. at 840-41, 205 P.3d 950. The "substantial evidence" test is "whether the record contains a sufficient quantity of evidence to persuade a fair-minded person of the truth or correctness of the order." *Port of Seattle v. Pollution Control Hearings Bd.*, 151 Wn.2d 568, 588, 90 P.3d 659 (2004) (internal quotations omitted).

In the challenged order, after first correctly concluding that "compliance with the WET limit is necessary to comply with water quality standards" (AR001107-AR001108, App. I), the Board described and deferred to what it characterized as Ecology's technical expertise and determination:

> Ecology exercised its technical expertise to evaluate at what point a non-compliant WET test indicates a violation of water quality standards, concluding that an initial WET test violation may be transient, not continuing, or simply inconclusive. This judgment reflects the science-based expertise of agency staff on a complex scientific or technical issue, and is consistent with the EPA guidance set

> forth above. The Board gives deference to Ecology's determination that a single WET limit exceedance does not indicate a pattern of toxicity, but is instead the trigger for a further process aimed at determining if, in fact, there is a violation of the toxicity standard of the Permit. The requirement for subsequent testing to determine whether or not there is a continued presence of toxicity, and allowance for the permittee to be in compliance with the Permit requirements while making this determination, is a valid exercise of Ecology's permitting discretion. The term that states a permittee is in compliance with the Permit while it responds to a single, and non-determinative WET test, is a valid approach and term in the Permit.
>
> However, once a subsequent or further test reveals ongoing noncompliance with the Permit's WET limit, we find the Permit becomes more ambiguous, while the law is clear. Because the law is clear and unambiguous on the meaning of ongoing violations of a WET limit, we need not give further deference to Ecology under the *Port of Seattle* decision. State and federal water quality laws leave no room but to conclude that an ongoing excursion of the WET limit of the Permit is a violation of the water quality standards, and consequently, a violation of the Permit.

AR001108-AR001109, App. I

Of course, as discussed above, Soundkeeper respectfully submits that the "law is clear and unambiguous" on the meaning of *any* violation of a WET limit, not only on "ongoing violations." AR001108, App. I. But to the immediate point, neither in this quoted passage nor elsewhere in the order did the Board identify where in the record it found evidence of Ecology's purported science-based determination. The technical analysis and determination that the Board described is not located in any

regulation, agency guidance or position paper, correspondence, permit writers' manual, the permit fact sheet, or anywhere else in the record. In fact, Ecology's briefing below contains **no** assertion that Ecology has determined "that a single WET limit exceedance does not indicate a pattern of toxicity," and that this determination warrants deference. *See* AR000756-AR000768; *and see* AR001061-AR001064. To the contrary, Ecology's brief below states, "If there is no continued presence of toxicity found in subsequent tests, Ecology does not conclude that there was no toxicity in the first sample. As Mr. Marshall explained, 'If it [the first test that exceeded the limit] was a good test and it passed everything, it most likely was a definite toxicity hit.'" AR000764:12 – 16 (citations omitted).

In deposition, Randy Marshall, Ecology's WET expert, confirmed, as is evident from reading WAC Ch. 173-205, that the WET regulation does not contemplate Respondents' alternative readings. AR000519:1 – 14, App. F ("There is nothing in Chapter 173-205 that specifies that concept of compliance with the process is compliance with the permit.") If Ecology had made a technical determination that more than a single acute WET compliance test failure is necessary to show toxicity and violate an NPDES permit condition, it most likely would set forth and explain that determination in its voluminous "Water Quality Program Permit Writer's Manual," "which describes Ecology's procedures when

issuing permits for wastewater discharges," most recently updated in 2011. AR000434, App. J. The Manual's extensive section on inclusion of WET in NPDES permits, however, describes and explains no such determination. *See* AR000444 – AR000469, App. J. Instead, consistent with Soundkeeper's interpretation of WAC 173-205-070, the Manual states that "[c]ompliance with an acute WET limit requires a demonstration of no acute toxicity in a concentration of effluent equal to the acute critical effluent concentration ...." AR000450, App. J; *see also* AR000453, App. J (flow chart showing determination of compliance ("Meet effluent limits?") before retesting conducted); and AR000452, App. J (following routine WET compliance test failure, "[c]ompliance with the permit limit is restored with the first additional sample that passes the compliance test.").

Marshall's deposition testimony provides the only explanation in the record for Ecology's decision to implement WAC Ch. 173-205 as it did in the challenged NPDES permit. Marshall authored WAC Ch. 173-205, but invented the "compliance with the process is compliance with the permit" scheme implemented in the challenged permit (and rejected by the Board) a couple of years after the regulation's adoption. AR000515:22 – AR000516:8, App. K. This scheme is not incorporated in the regulation, but was belatedly put to use to make the WET limitation provisions of

Ecology's NPDES permits more palatable to permittees – **not** because Ecology made a technical determination "that a single WET limit exceedance does not indicate a pattern of toxicity." AR001108, App. I; AR000508:14 – AR000510:14, AR000519:1 – 14, App. F. Upholding the Board's decision to defer to this permitting scheme would radically expand Washington's deference doctrine by allowing agencies to cloak behind the wall of deference decisions based on politics, rather than science or the law, and re-write agency regulations outside of the confines of the state APA. This is certainly a "compelling indication" that deference to Ecology in this situation is far from appropriate. *See* BP Brief at 36.

The Court should reject BP's misleading attempt to find evidence of Ecology's purported science-based determination. BP Brief at 21 – 22. BP first cites Ecology's long-standing practice of interpreting WAC 173-205 as it has in the challenged permit. *Id.* But evidence of Ecology's implementation of WAC 173-205 historically or in any other NPDES permits is scant in the record, and, in any case, a long-standing administrative construction does not stand if it is clearly erroneous. *Young v. State Bd. of Control*, 93 Cal. App.3d 637, 640 (1979).

BP then cites out of context a passage from Ecology's "Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria." BP Brief at 21 – 22. This guidance is about how to conduct WET testing and perform

laboratory analysis, not about how to implement the WET regulation in NPDES permits. AR001034 – AR001042, App. M. For instance, the first paragraph in the section "WET Testing Requirements in NPDES Permits" is plainly directed at labs and consultants, not Ecology staff:

> National Pollutant Discharge Elimination System (NPDES) permits describe how provisions in the WET rule apply to each individual permittee. Labs should follow the instructions in a client's permit. It is important that labs get a copy of the toxicity testing pages of a permit in order to provide the best service. Permits are available from a client or online ....

AR0001042, App. M. Also, BP's excerpting is misleading. Wanting to cite a fragment from page 3 of the guidance, BP omits page 2, which includes the following statement about what the standards require: "Compliance with a WET limit means demonstrating no toxicity in a sample of effluent diluted to equal the critical effluent concentration." AR0001043, App. M.

3. Even if Ecology did make a technical determination concerning the meaning of a single WET compliance test failure, it warrants no deference because it lacks rational basis.

When a PCHB order is inconsistent with an Ecology rule, the Court should grant relief unless Ecology "provides facts and reasons to demonstrate a rational basis for the inconsistency." *Cmty. Ass'n for Restoration of the Env't*, 149 Wn. App. at 840, 205 P.3d 950 (citation

omitted). Even if, as the PCHB found, Ecology exercised its technical expertise in determining that a "single WET limit exceedance" "does not indicate a pattern of toxicity" because "an initial WET test violation may be transient, not continuing, or simply inconclusive," this determination would be entitled to no deference because it lacks any rational basis. *Id.*; AR001108, App. I.

To begin, in its briefing below, Ecology explained that the successful passage of subsequent WET tests does not mean that "there was no toxicity in the first sample." AR000764:12 – 16. Since toxicity is the prohibited effect, there is no basis to conclude that even a single, isolated WET compliance test failure can be allowed, i.e., not prohibited, by the permit.

State statute allows toxicity not in small or transient doses, but "in no event." RCW 90.48.520. The narrative water quality standard prohibits the introduction of toxic substances that "have the potential" to cause acute toxicity, not only continuing or ongoing toxicity. WAC 173-201A-240(1). Neither Ecology nor the Board offer any explanation as to why a test for *acute* toxicity need be repeatedly failed to offend these clear and categorical prohibitions.

Similarly, neither Ecology nor the Board even attempt to explain how not counting a single WET compliance test failure as a permit

violation comports with the regulation's explicit categorization of the compliance test as "a maximum daily discharge permit limitation." WAC 173-205-070(1)(d). Indeed, a primary purpose of WAC Ch. 173-205 is the translation of the WAC 173-201A-240(1) narrative toxicity standard into effluent limitations for insertion in NPDES permits. It does this by explicating a statistical compliance test that must be "considered to be a maximum daily discharge permit limitation." WAC 173-205-070(1)(d). No explanation is offered for why or how Ecology's purported determination that a "single WET limit exceedance does not indicate a pattern of toxicity" forms a rational basis for a permit condition that allows a WET compliance test failure to be anything other than a violation of "a maximum daily discharge permit limitation." It is simply absurd to conclude that a failed WET test violates a "permit limitation," but not the permit. The WET regulation could easily have been written to preclude violation or enforcement except after two or more exceedances, but it is not.

D. Concerns about interpretation or validity of WET test results are addressed by WAC Ch. 173-205 in implementing the prohibition on each and every instance of toxicity.

The imperfections and possible complications involved in WET testing and interpretation of test results form no basis to discount the

regulatorily-defined implication of a single WET compliance test failure. First, the technical soundness of WET testing as a basis for NPDES regulation has been examined in detail and upheld by a federal appeals court. *Edison Electric Inst. v. Envtl. Protection Agency*, 391 F.3d 1267, 1268-9 (D.C. Cir. 2004). Second, WAC Ch. 173-205 both explicitly defines the "compliance test for acute toxicity," which is based on "the most recent acute toxicity test," as "a maximum daily discharge permit limitation," and accommodates issues about variability, false positives, anomalous test results, and invalid tests. WAC 173-205-020, -070(4) and (5), -090(1)(d) – (f).

The compliance test set forth in WAC 173-205-070(1) imposes rigorous statistical standards in evaluating compliance, basing the test on finding a precisely defined "statistically significant" difference in response between the subject test and a control, where an exacting "acute statistical power standard" must be maintained. WAC 173-205-070(1)(a); WAC 173-205-020 (defining "statistically significant" and "acute statistical power standard"). Ecology checks WET test results for compliance with statistical power standards, and will not use non-conforming results to determine compliance with a WET limit. WAC 173-205-070(4) and (5)(c). As described in the Permit Writer's Manual, and contrary to BP's

incorrect and alarmist calculations (BP Brief at 31, n.2), these statistical safeguards on WET test validity minimize the chance for false positives:

> When a statistically significant difference in response is due to test variability and not to toxicity, the WET test has produced a false positive result. However, a confidence level of 95% does not mean that 1 in 20 (5%) of failed WET tests is a false positive. The confidence level only approximates the worst case false positive rate which exists when the two values being compared are relatively close together. The further apart these values are, the less likely are false positive results. In other words, if all of the organisms in the ACEC die and none die in the control, the probability that the statistically significant difference in response is a false positive is closer to 0 than 1 in 20. The overall false positive rate is less than 1 in 20 and is almost always less than the overall false negative rate.

AR000451, App. J.

WET test samples must be handled as directed by an NPDES permit and EPA guidance referenced. WAC 173-205-080(1). Invalid WET tests, which "occur when the lab does not follow the test method or when the results do not meet the validation criteria in the test method," are thus not to be used for assessing compliance. *Id.*; AR000451, App. J.

"Anomalous test results happen when the lab appears to have conducted the WET test in accordance with the test method, but the results are unreliable according to review criteria." AR000451, App. J. Anomalous test results may be flagged by the submitting permittee and Ecology also checks for them. WAC 173-205-070(5)(c); WAC 173-205-

090(1)(d), (e), and (f). Anomalous results are not used to determine compliance, and result in a WET test do-over. WAC 173-205-070(5)(c); WAC 173-205-090(1)(f).

III. CONCLUSION

For the foregoing reasons, and those set forth in Petitioners' opening brief, the Court should reverse and remand the Board's order on summary judgment that allows Ecology to issue an NPDES permit that makes only follow-up WET test failures permit violations, thus authorizing violation of WAC 173-201A-240(1) demonstrated by a failure of an initial WET compliance test. Soundkeeper further requests that the Court instruct the Board to remand condition S7 of the BP Cherry Point NPDES permit to Ecology for revision consistent with the Court's order.

RESPECTFULLY SUBMITTED this 22nd day of July, 2014.

SMITH & LOWNEY, P.L.L.C.

By: _____

Richard A. Smith, WSBA # 21788
Elizabeth Zultoski, WSBA # 44988

Attorneys for Petitioners Puget Soundkeeper Alliance, RE Sources for Sustainable Communities, and Friends of the Earth

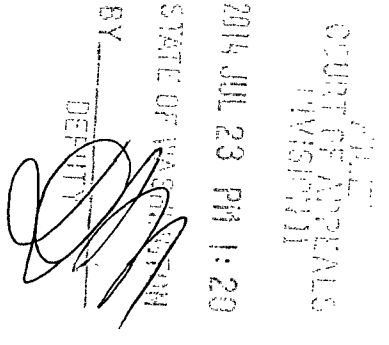
DECLARATION OF SERVICE

I, Jessie Sherwood, declare under penalty of perjury under the laws of the State of Washington that on this date I caused the Petitioners' Reply Brief to be served via electronic service on the following persons on July 22 2014:

Phyllis Barney
Assistant Attorney General; Attorney of Record for the Department of Ecology
Office of the Attorney General, Ecology Division
P.O. Box 40117
Olympia, WA 98504-0117
PhyllisB@atg.wa.gov, ecyolef@atg.wa.gov

Beth Ginsberg and Matthew Cohen
Attorneys of record for BP Cherry Point Refinery
Stoel Rives LLP
600 University Street, Ste 3600
Seattle, WA 98101
bsginsberg@stoel.com, MCOHEN@stoel.com

Diane L. McDaniel
Senior Assistant Attorney General
Attorney for the Pollution Control Hearings Board
P.O. Box 40110
Olympia, WA 98504-0110
dianem@atg.wa.gov
LALOlyEF@atg.wa.gov



Dated at Seattle, Washington on 22nd of July, 2014

Jessie Sherwood
Jessie Sherwood

APPENDIX J

Water Quality Program
Permit Writer's Manual

Prepared by:
Gary Bailey

Water Quality Program
Washington State Department of Ecology
Olympia, Washington

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47600 • Olympia, WA 98504-7600 • 360-407-6000
711 for Washington Relay Service • Persons with a speech disability can call 877-833-6341

MEMORANDUM

December 2, 2011

To: Ecology Wastewater Permit Writers

From: Kelly Susewind, Water Quality Program Manager

Subject: Permit Writers Manual

Attached, for your use, is the latest revision to the Permit Writer's Manual which describes Ecology's procedures when issuing permits for wastewater discharges. Permit managers are required to use the procedures in this manual for developing permits. If a permit writer believes a permitting situation requires a process that is different than that in the Manual, the permit writer should discuss alternative processes with the supervisor. If staff members believe there are problems or issues which need to be addressed in the Manual, they should recommend their supervisor or PWG member bring the issue to Bill Moore or Nancy Kmet.

Kelly Susewind, P.E., P.G.
Water Quality Program Manager

Attachment

5. WHOLE EFFLUENT TOXICITY (WET)

5.1 Permit Writer's Task Summary

This Section is a summary of how permit writers implement Chapter 173-205 WAC, Whole Effluent Toxicity Testing and Limits for different permitting situations. The following subsections of 5.2 through 5.14 describe the rule and implementation processes in more detail. Additional detail on test species, statistics, anomalous tests, and sampling is found in Ecology Publication WQ-R-95-80 (Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria) which is available from agency libraries or from http://www.ecy.wa.gov/programs/wq/wet.

New Permits

Permit managers should:

- Evaluate the discharge for need for effluent characterization (See subsection 5.4.).
- Decide on species to require in the permit (See subsection 5.11.).
- Decide on the monitoring frequency (See Chapter XIII, Section 4.).
- Decide on the use of rapid screening tests (See subsection 5.8.).
- Use model language in the permit.
- Contact the PDS Section for assistance with non-compliance or reviewing a TI/RE plan.

Permit Renewals with Previous Effluent Characterization

Permit managers should:

- Contact the PDS Section for the WET data record (See subsection 5.14.).
- Decide if additional characterization is required (See subsection 5.4.).
- Decide if a permittee with a WET limit no longer needs that limit (See subsection 5.7.).
- Decide on species to require in the permit (See subsection 5.11.).
- Decide on the monitoring frequency (See Chapter XIII, Section 4.).
- Decide on the use of rapid screening tests (See subsection 5.8.).
- Use model language in the permit.
- Contact the PDS Section for assistance with non-compliance or reviewing a TI/RE plan.

5.2 Introduction

Whole effluent toxicity is the total toxicity of an effluent measured directly with a toxicity test. WET testing is necessary because EPA cannot develop water quality criteria for every one of the thousands of toxic pollutants possibly found in wastewater discharges. WET testing is also the only method available to permit managers for assessing the toxic interaction of pollutants.

Chapter 173-205 WAC, Whole Effluent Toxicity Testing and Limits (the WET rule), became effective November 6, 1993. The goal of the WET rule is the eventual elimination of the discharge of toxics in toxic amounts. The WET rule establishes a procedure for deriving whole effluent

toxicity limits in accordance with RCW 90.48.520, 40 CFR 122.44(d), and 40 CFR 122.44(e) for inclusion into NPDES permits. The rule implements the requirement for all known, available, and reasonable methods of prevention, control, and treatment of toxicants and assures the attainment of state water quality standards.

This guidance explains WET requirements and helps readers locate WET rule sections pertinent to each issue. It will be helpful to refer to the text of the WET rule while using this Section of the *Permit Writer's Manual*. The WET rule contains the authoritative language on the WET requirements and should be consulted directly in order to make correct decisions. This guidance directs the reader to the section of the WET rule applicable to each subject discussed below.

WET testing is used in NPDES permits for the following purposes:
♦ *To serve as a broad spectrum indicator of increases in effluent toxicity.* Analyzing effluents regularly for every possible toxic chemical would be expensive. WET tests provide an assessment of the overall toxicity of every toxicant and toxicant combination.
♦ *To assess and limit WET to levels allowable under the state Water Quality Standards.* The state's water quality standards prohibit ambient toxicity (WAC 173-201A-040(1), WAC 173-201A-030). The water quality standards also establish the point of compliance; there is no ambient toxicity allowed past the edge of an approved mixing zone (WAC 173-201A-100). The main purpose of Chapter 173-205 WAC is to characterize effluents for WET in order to establish whether a reasonable potential exists to violate this prohibition against ambient toxicity. If a reasonable potential exists, a permit limit is required on WET (WAC 173-205-050(2)(a)). The WET rule also describes how to monitor for WET limits based on the prohibition against ambient toxicity outside of approved mixing zones (WAC 173-205-070(1) and (2)).
♦ *To assess and limit WET on a technology basis.* Technology-based limits on acute WET may be placed into permits on a case-by-case basis (WAC 173-205-130). WAC 173-

205-130 does not provide for technology-based WET limits for categories of dischargers or for chronic WET.

The regulatory process for WET in NPDES permits is shown in Figure VI-8 and Figure VI-9. Figure VI-10 illustrates the compliance process for WET. The steps in the process in Figure VI-8 are described below.

1. The process begins with NPDES permit application. The application can be for a new NPDES permit or for renewal of an existing permit. If a previous permit required an effluent characterization, the permittee will either be at STEP 5 and STEP 6 will determine the new permit requirements or the permittee will be at STEP 7 and STEP 8 will determine the new permit requirements.

2. Section 173-205-040 of the WET rule contains a list of circumstances under which a discharge is required to be characterized for WET. These circumstances define discharges with a risk for aquatic toxicity. The permits for a discharge which fits any of these circumstances will contain a requirement for WET characterization. Unless section 173-205-060 applies, effluent characterization will only happen once in the lifetime of a discharge. Permits for discharges which do not fit any of the circumstances will not require WET testing. If circumstances change so that a facility no longer has a risk for aquatic toxicity pursuant to WAC 173-205-040(1), a permit writer may make a determination in accordance with WAC 173-205-040(2)(h) to stop WET testing.

3. An effluent characterization usually occurs during the first year of the permit term. Effluent characterization establishes the baseline toxicity level and determines the need for WET limits. Every sample during effluent characterization will be tested with all of the WET tests listed in the permit (multiple species testing).

4. The permit will require that the permittee determines, at the end of effluent characterization, whether the WET performance standards have been met for acute and chronic toxicity. The performance standard for acute toxicity is a median of at least 80% survival in 100% effluent with no single test showing less than 65% survival in 100% effluent. The performance standard for chronic toxicity is no toxicity in a concentration of effluent representing the edge of the acute mixing zone. Permittees meeting performance standards will get no WET limits or compliance monitoring and go straight to STEP 7 on the diagram.

5. Those permittees not meeting a performance standard during effluent characterization will receive WET limits. The permit will require monitoring to determine compliance with the WET limit. Failing to comply with a WET limit will trigger additional WET testing and possibly other enforcement actions as described in subsection 5.6 and Figure VI-10 below.

6. The WET rule does not intend that WET limits are permanent. If a permittee with a WET limit meets the performance standard during compliance monitoring for a permit term, then the WET limit will not be placed into subsequent permits. By controlling toxicity well enough to meet the performance standard, the permittee has allowed the limit and routine monitoring to be removed from the permit. The permittee's cost and liability are lower.

7. Permittees who have attained the performance standards can remain indefinitely without WET limits or compliance monitoring. The only requirement will be WET test results submitted with each permit application or rapid screening testing during the permit term. The results of the WET tests done for permit application or routine rapid screening testing will be used to determine if another effluent characterization is needed. (In addition, there is a requirement in 40 CFR 122.21(j) that POTWs with design influent flows greater than or equal to 1 mgd and POTWs required to develop pretreatment programs must submit WET test results with each permit application in Part E of the 2A permit application form.)

8. If **changes** have occurred that **might increase toxicity**, then the next permit will require a new effluent characterization in accordance with WAC 173-205-060 and start the process over again at STEP 3. WET limits could result from a new effluent characterization or the permittee could go directly back to STEP 7 with no WET limits. If **changes** have occurred that **decrease the chance for effluent toxicity**, then the permit application should be reviewed as in STEP 2 to see if any of the risk criteria in WAC 173-205-040 still apply. If none of the risk criteria apply, WET testing requirements can be removed from the next permit. If any of the risk criteria still apply, the permit should keep the requirement to submit a set of WET test results with the next permit application as in STEP 7 even though there is a reduced risk.

Figure VI-8. The WET implementation process.

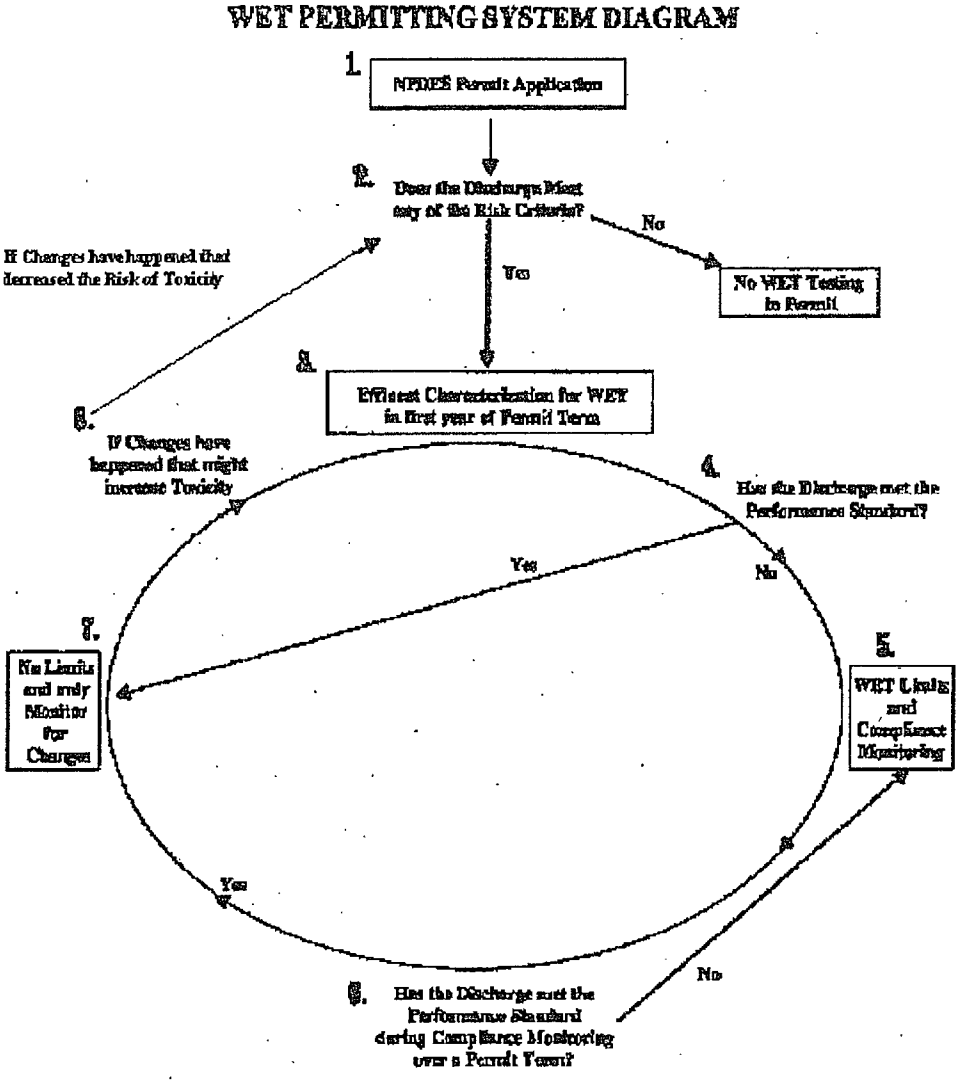
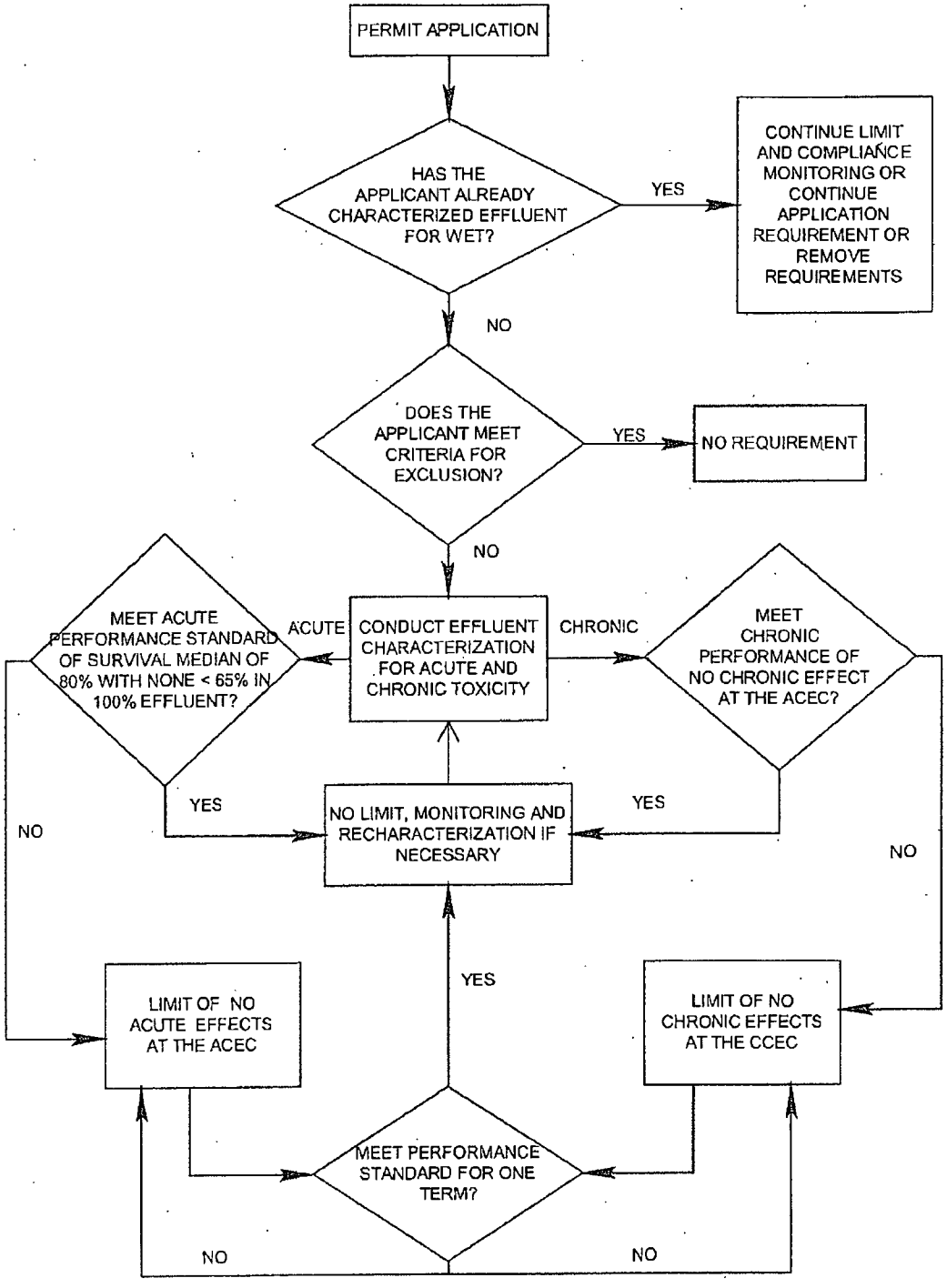


Figure VI-9. WET requirements for permits



5.3 The Purpose of Effluent Characterization

Effluent characterization is used to establish whether a reasonable potential exists pursuant to 40 CFR 122.44(d)(1)(v) which would require a WET limit. Acute and chronic WET are evaluated separately for a reasonable potential to violate the water quality standards. Permittees who cannot meet the WET performance standards have demonstrated a reasonable potential for ambient toxicity and need WET limits (WAC 173-205-020 and in WAC 173-205-050(2)(a)). Effluent characterization is also used to establish a baseline toxicity level (WAC 173-205-050(2)(b)). The effluent characterization process lasts for one year (WAC 173-205-020 and WAC 173-205-050(1)). During the year of effluent characterization, each effluent sample is tested with all WET test species listed in the permit. This multiple species testing provides an assessment of effluent toxicity in order to provide protection to as many different types of receiving water organisms as possible. See subsection 5.11 for guidance on WET test species selection.

5.4 Determining the Need for Effluent Characterization

Effluent characterizations for WET are required when:

♦ A discharge has never before been characterized for WET and has one or more of the risk factors in WAC 173-205-040(1). These factors include the presence of hazardous substances (Table VI-3) at the facility which could be released to the wastewater system, the presence of toxic pollutants in the effluent for which there are no water quality criteria, being an industry listed in Table VI-4, or toxicity detected in past WET testing.
♦ A discharge that has been previously characterized for WET experiences changes in process or discharge characteristics (WAC 173-205-060(1)) and has not made the demonstration pursuant to WAC 173-205-060(2) that the changes have not increased effluent toxicity.
♦ Either a rapid screening test result during the permit term or a WET test result submitted with the permit application has shown toxicity at levels of regulatory concern (WAC 173-205-060(3)).
♦ A new WET test has been approved pursuant to WAC 173-205-050(1)(d) that would measure effluent toxicity better than the WET tests used in the original effluent characterization. The discharge will then be characterized using only the new WET test (WAC 173-205-060(5) and (6)).

Effluent characterizations for WET are not required when:

♦ The discharge has none of the risk factors in WAC 173-205-040(1) and is excluded by WAC 173-205-040(2).
♦ The discharge has none of the risk factors in WAC 173-205-040(1) and the permit manager has made a determination the effluent doesn't have the potential to contain toxic substances in toxic amounts (WAC 173-205-040(2)(h)).
♦ If the effluent receives at least 1000:1 dilution at the edge of an approved mixing zone, the chronic testing is skipped but **characterization for acute toxicity is still done.** (WAC 173-205-040(3))
♦ If the permittee is monitoring for compliance with a WET limit using species rotation, additional characterizations for WET are not required (WAC 173-205-060(4)) for the type of toxicity (acute or chronic) covered by that WET limit.
♦ No additional effluent characterization is required for a discharge that has experienced a change if the permittee has made a demonstration that the change has not increased toxicity (WAC 173-205-060(2)). The demonstration might include toxicity testing, chemical analysis, or both.

Other effluent characterization requirements:

♦ Characterization for WET may be delayed for existing facilities that are under a compliance schedule to implement technology-based controls or to achieve compliance with water quality-based effluent limits (WAC 173-205-030(4)).
♦ Unless WAC 173-205-060 applies, effluent characterizations conducted in a previous permit need not be repeated as long as the information is adequate to make all determinations in WAC 173-205-050(2) and meet the permitting requirement in WAC 173-205-030(5)(b). The determinations in WAC 173-205-050(2)(a) can be made as long as the results of the effluent characterization include the percent survival in 100% effluent for every acute test and the NOEC for every chronic test. WAC 173-205-050(2)(b) also requires that an effluent characterization generate point estimates (LC_{50}, EC_{50}, etc.) to use in establishing a baseline toxicity level. WET tests conducted for effluent characterization must be from EPA manuals (WAC 173-205-050(1)(d)) or listed in 40 CFR Part 136.
♦ The determination in WAC 173-205-050(2)(a)(ii) can be complicated, or perhaps even inconclusive, if the acute critical effluent concentration (ACEC) is not specified in the permit and included in the concentration series of chronic WET tests conducted for effluent characterization.
♦ Effluent characterization may include WET tests conducted on ambient water collected downstream of the discharge or using ambient water collected upstream of the discharge as dilution water (WAC 173-205-030(6)). Testing downstream samples has already been done in one permit and has withstood challenge in front of the Pollution Control Hearings Board (PCHB).

5.5 Determining Compliance with WET Limits

SPECIES ROTATION. Because changes in an effluent can change the relative sensitivity of the WET test species listed in the permit, species will be rotated during compliance monitoring. The rotation schedule need not have an equal testing frequency for all of the species. If one species was clearly the most sensitive during effluent characterization, then the rotation schedule should use the most sensitive species for all monitoring. The model permit language allows Ecology to notify a permittee of the rotation schedule. If the rotation schedule is not specified by Ecology, then the permit language directs the permittee to test the species in the order listed in the permit.

ACUTE WET LIMITS. Compliance with an acute WET limit requires a demonstration of no acute toxicity in a concentration of effluent equal to the acute critical effluent concentration (ACEC)(WAC 173-205-070(1)). The ACEC is defined as the maximum concentration of effluent during critical conditions at the boundary of the zone of acute criteria exceedance (WAC 173-205-020). A demonstration of no acute toxicity at the ACEC means that the effluent is not at a concentration above acute toxicity thresholds outside of the zone of acute criteria exceedance.

CHRONIC WET LIMITS. Compliance with a chronic WET limit requires a demonstration of no chronic toxicity in a concentration of effluent equal to the chronic critical effluent concentration (CCEC) (WAC 173-205-070(2)). The CCEC is defined as the maximum concentration of effluent during critical conditions at the boundary of the mixing zone (WAC 173-205-020). A demonstration of no chronic toxicity at the CCEC means that the effluent is not at a concentration above chronic toxicity thresholds outside of the mixing zone.

STATISTICALLY SIGNIFICANT DIFFERENCES IN RESPONSE. The scientifically valid way to make a demonstration of no toxicity is to demonstrate that the ACEC or the CCEC in a WET test has no statistically significant difference in organism response from the control. The control is

laboratory water that is known to be nontoxic to test organisms. If there is a statistically significant difference in response between the ACEC or CCEC and the control, then toxicity has been demonstrated. If there is no statistically significant difference in response, then it can be assumed that there is no toxicity at the ACEC or CCEC and that the permittee has complied with the performance standard or the WET limit.

HYPOTHESIS TESTING. Statistical significance means that the difference in response between a control and the ACEC or CCEC is likely to be due to toxicity and not to test variability. The statistical technique for making this determination is a hypothesis test. A hypothesis test compares the average response of the replicates of the ACEC or CCEC to the average response of the control replicates in order to determine if there is a statistically significant difference in response at some level of confidence such as 95%. There is a 5% chance for some test results at the 95% level of confidence that a difference will be due to chance and not toxicity. There is a 1% chance for some test results at the 99% level of confidence that a difference will be due to chance and not toxicity. Differences due to chance are called false positives or Type I errors.

FALSE POSITIVE TEST RESULTS. When a statistically significant difference in response is due to test variability and not to toxicity, the WET test has produced a false positive result. However, a confidence level of 95% does not mean that 1 in 20 (5%) of failed WET tests is a false positive. The confidence level only approximates the worst case false positive rate which exists when the two values being compared are relatively close together. The further apart these values are, the less likely are false positive results. In other words, if all of the organisms in the ACEC die and none die in the control, the probability that the statistically significant difference in response is a false positive is closer to 0 than 1 in 20. The overall false positive rate is less than 1 in 20 and is almost always less than the overall false negative rate. To prevent most false positive test results, the model permit language raises the confidence level to 99% when the differences in response are small.

DEFINITION OF INVALID TESTS AND ANOMALOUS TEST RESULTS. Invalid WET tests occur when the lab does not follow the test method or when the results do not meet the validation criteria in the test method. Permittees are obligated to assure that all tests are valid because the permit requires that only the results of valid tests be submitted. The Program Development Services Section reviews WET test results to see that they are based on valid tests.

Anomalous test results happen when the lab appears to have conducted the WET test in accordance with the test method, but the results are unreliable according to review criteria. There is no requirement for Permittees to attempt to identify anomalous WET test results. All valid WET test results must be submitted whether anomalous or not. See subsection 5.10.2 for a discussion of permittee identification of anomalous test results.

The Program Development Services Section will be reviewing WET test results and screening out anomalous test results. Anomalous test results will not be used for compliance determinations (WAC 173-205-070(5)(c)). Most anomalous test results will be identified by the lack of a good concentration-response relationship. If the toxic response does not increase as the concentration of effluent increases, then the test is considered to be anomalous in most cases. Permittees will usually be required to take another sample and repeat the WET test when results are anomalous.

FALSE NEGATIVE TEST RESULTS AND THE POWER STANDARDS. Sometimes variability across replicates will prevent a large difference in response (in other words, a toxic effluent) from being detected as statistically significant. False negatives happen easily when the number of replicates is

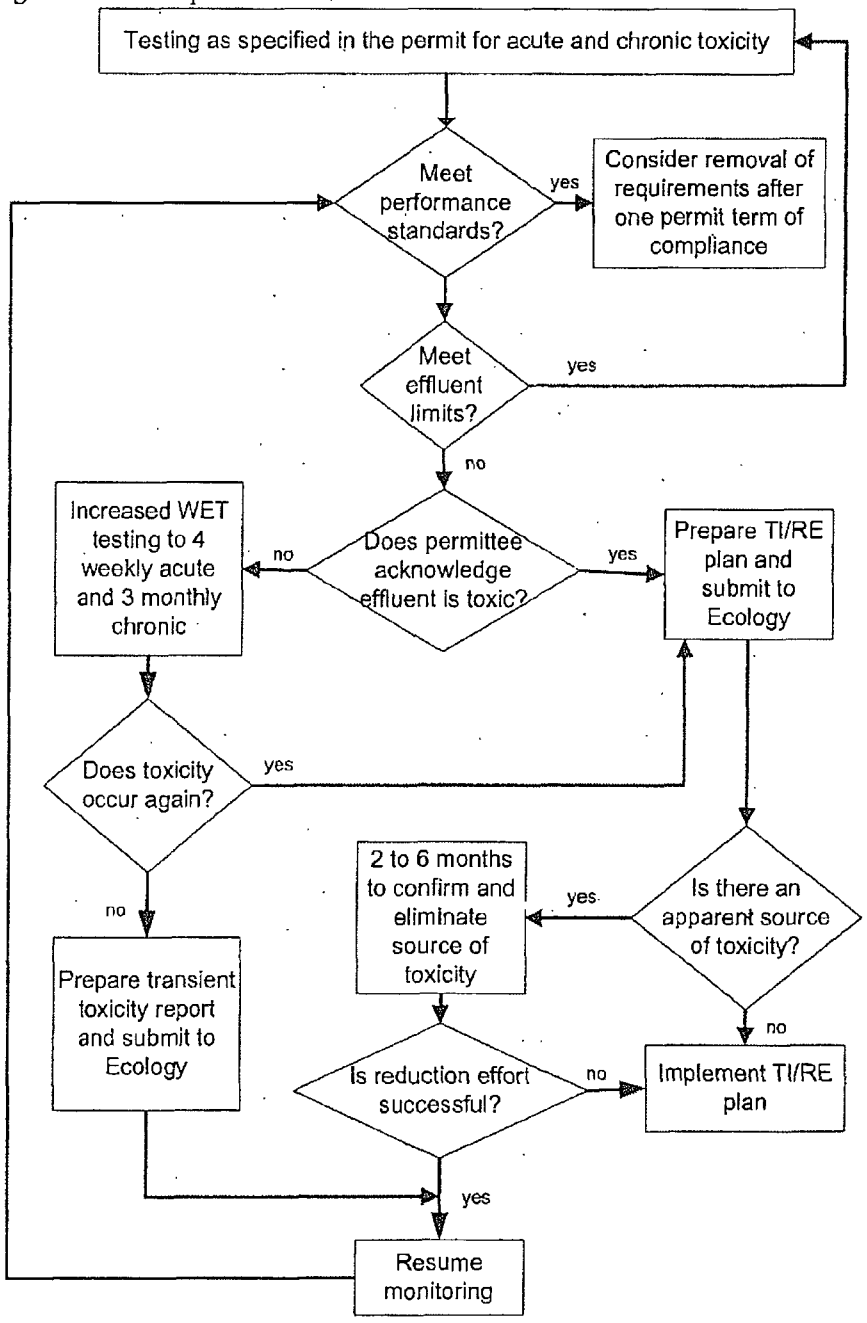
low and the lab is not careful in conducting the WET test. Chapter 173-205 WAC handles false negatives through the establishment of power standards. Several parts of the WET rule require that toxicity tests meet the power standards (WAC 173-205-050(1)(f)(ii), WAC 173-205-050(2)(a)(iii)(A), WAC 173-205-070(4), and WAC 173-205-120(2)(c)). The acute statistical power standard and the chronic statistical power standard are defined in WAC 173-205-020. The acute statistical power standard says that acute toxicity tests must be able to detect a minimum of a 30% difference in survival between the ACEC and a control as statistically significant. The chronic statistical power standard says that chronic toxicity tests must be able to detect a minimum of a 40% difference in response between the ACEC or CCEC and a control as statistically significant. If a WET test does not meet the appropriate statistical power standard, then the permittee will be required to immediately resample the effluent and repeat the toxicity test with the number of replicates increased in order to meet the statistical power standard.

5.6 Noncompliance, Transient Toxicity Reports, and TI/RE Plans

ADDITIONAL TESTING AND TRANSIENT TOXICITY REPORTS. (Figure VI-10). When a permittee fails a routine compliance test for a WET limit, then additional testing is immediately required to assess and confirm the continuing presence of toxicity (WAC 173-205-090(1)). WET testing of 4 additional weekly samples are required following noncompliance with an acute WET limit and 3 additional monthly samples following noncompliance with a chronic WET limit (WAC 173-205-090(1)). If only the routine compliance test is failed, then the permittee is required to prepare a transient toxicity report on the possible causes and prevention of the toxicity. Compliance with the permit limit is restored with the first additional sample that passes the compliance test. Compliance with all WET testing provisions of the permit is accomplished by passing all of the additional testing following a routine compliance test failure and submitting an acceptable transient toxicity report. The contents of a transient toxicity report are described in WAC 173-205-100(1).

TI/RE PLANS. If any toxicity test fails the compliance test during the additional monitoring, then the permittee must submit a TI/RE plan to Ecology within sixty days of the last additional sample (WAC 173-205-100(2)). The TI/RE plan will be based on procedures in the latest versions of the EPA guidance documents for conducting toxicity reduction evaluations or toxicity identification evaluations (WAC 173-205-100(2)(b)). However, the TI/RE plan need not include any procedure from the EPA manuals that is not necessary to the goal of controlling the discharge of WET by the permittee (WAC 173-205-100(2)(b)(i)). Ecology may approve any modifications or additions to the EPA procedures that will improve the ability to identify or reduce toxicity (WAC 173-205-100(2)(b)(ii)). The permittee is required to implement the TI/RE plan immediately upon notification by Ecology of plan approval (WAC 173-205-100(3)). Model permit language specifies an administrative order as the means to notify a permittee to implement a TI/RE. The Program Development Services Section will assist in reviewing TI/RE plans and in writing administrative orders to implement TI/RE plans.

Figure VI-10 Compliance Process for WET



5.7 Removal of WET Limits

A WET limit is eligible for removal upon permit renewal if the permittee has demonstrated compliance with the WET performance standard associated with that limit for at least the last three consecutive test years following effluent characterization or for an entire subsequent permit term, and has not made any changes within the last three years which would otherwise require additional effluent characterization (WAC 173-205-120(1)).
Removing a WET limit under this provision of Chapter 173-205 WAC is a good idea for the following reasons:

♦ *It protects the environment.* Concentration-response curves are steep and toxicity decreases rapidly with dilution. As a consequence, toxicity is often undetectable at the ACEC or CCEC. This means that WET limits will be easily met by most dischargers. However, when the concentration of toxic chemicals increases in the effluent, then toxicity increases quickly. Toxicity (especially acute toxicity) tends to behave as if there was a threshold where one side is safe and the other side is lethal to aquatic organisms. A larger margin of safety is a good idea under these circumstances. Offering to remove these WET limits provides a strong incentive to do more to control toxicity than is required to meet the water quality standards. The performance standards provide a margin of safety for the environment and move toward the goal of RCW 90.48.520.
♦ *It is fair.* Other permittees conducted a similar or smaller amount of WET testing during effluent characterization and did not receive a WET limit in the first place. If a permittee can meet the same performance standard measured with at least as much WET testing over a longer period of time as other permittees who received no WET limits did, then that permittee also has no reasonable potential to violate the water quality standards.
♦ *It fits into the system for regulating WET in Chapter 173-205 WAC.* Chapter 173-205 WAC recognizes that the evaluation of WET is an ongoing process that encompasses more than just dividing permittees into two groups: those with WET limits and those without WET limits. Chapter 173-205 WAC also has provisions for rapid screening tests, for additional effluent characterizations, for permittee evaluations of facility changes, and for technology-based acute WET limits. All of these provisions are enhanced by or dependant on WET limit removal.

5.8 Determining the Need for Rapid Screening Tests

RAPID SCREENING TESTS. A rapid screening test is 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 (Microtox®), and two-day life cycle tests with rotifers. See subsection 5.12 for guidance on rapid screening test selection.

RAPID SCREENING TESTS WHEN WET LIMITS ARE NOT ASSIGNED OR ARE REMOVED. Permit managers may condition the nonassignment of a WET limit with a requirement for routine monitoring with a rapid screening test (WAC 173-205-120(2)). A permit manager must place rapid screening tests into a permit if there is the potential for an event at the facility which could result in a toxic discharge that would otherwise go unnoticed (WAC 173-205-120(2)(a)(ii)). The permit manager should consider the potential for treatment system upsets, control equipment failures, spills, accidental releases to the wastewater system, or any other event which could result in a toxic discharge. If a permittee refuses to accept rapid screening tests in the permit, leave the WET limit in

place. Chemical monitoring may also be required to assess increases in effluent toxicity when adequate for that purpose.

RAPID SCREENING TESTS AND ADDITIONAL EFFLUENT CHARACTERIZATIONS. Rapid screening testing can be beneficial for the permit manager and the permittee. Toxicity caused by a facility change can be determined if a permittee is routinely doing rapid screening tests with a known sensitivity relative to the regular WET tests. Additional effluent characterizations are then unnecessary.

THE RESULT OF RAPID SCREENING TESTING. Whenever a rapid screening test is failed, the permittee must immediately retest with all of the acute or chronic toxicity tests used in the last permit with WET (WAC 173-205-120(2)(d)). Toxicity detected by a rapid screening test must be confirmed by the traditional EPA WET tests. The results of these acute or chronic toxicity tests conducted in response to a rapid screening test will be evaluated to determine the need for a new WET characterization in the next permit or the need for immediate administrative orders to implement the regulatory process which begins in WAC 173-205-090.

OTHER USES OF RAPID SCREENING TESTS. Rapid screening tests may be required of any permittee (WAC 173-205-030(5)). This means that, in addition to evaluating changes in the toxicity of discharges which have no WET limits, rapid screening tests can be used during effluent characterization to develop a correlation with the WET tests or in a permit with WET limits to raise the monitoring frequency. **Compliance with WET limits is never measured with a rapid screening test.** They can be required at a higher monitoring frequency than the WET tests and are used to trigger the WET tests when needed.

5.9 Technology-Based WET Limits

PROCESS. A permit manager may place the WET performance standard for acute toxicity into permits as a limit on a case-by-case basis pursuant to 40 CFR 125.3(d)(3) (WAC 173-205-130(2)). 40 CFR 125.3(d)(3) contains the list of factors which must be considered in setting case-by-case BAT limits. There are six of these site-specific factors. These include: the age of equipment, the process employed at the facility, changes to the process required to meet the performance-based limit, engineering aspects of the control techniques, and the cost of achieving the performance-based limit. These considerations require the assistance of the Program Development Services Section.

TIMING. The performance-based acute toxicity limit in WAC 173-205-130(2) will not be automatically applied to all permittees in a category, but will only be imposed on a case-by-case basis after several years have passed during which permittees are encouraged to meet the performance standards solely through the incentive of offering to remove WET limits and compliance monitoring from the permit. The determination to impose a performance-based WET limit will not occur until after a water quality-based acute WET limit has been assigned, after at least one permit term of monitoring for compliance with the water quality-based WET limit, after a similar permittee has met the acute toxicity performance standard, and after consideration of the site-specific factors listed in 40 CFR 125.3(d)(3). Because these steps must occur before the determination is made to impose a performance-based limit, the delay will be at least five years before such a limit is placed in a permit unless such a limit was already in place before Chapter 173-205 WAC became effective.

5.10 Options for Permittees

5.10.1 Conducting WET Tests

There are three options for permittees:

♦ Permittees may conduct toxicity tests using a full dilution series (WAC 173-205-030(9)). A full dilution series would protect the permittee by allowing anomalous test results to be identified by examining the concentration-response relationship. It also allows our database to contain a better record of baseline effluent toxicity, compare the toxicity of different discharges, and evaluate the response of different WET tests.

♦ A permit manager may approve the request of a POTW discharging less than 0.5 mgd or a small business as defined in RCW 43.31.025(4) to conduct WET testing as effluent screening tests using 100% effluent for the acute toxicity tests and the ACEC for the chronic toxicity tests (WAC 173-205-050(1)(f)). A small business is defined as a business entity which is owned and operated independently from all other businesses, which has the purpose of making a profit, and which has 50 or fewer employees (RCW 43.31.025). Effluent screening tests are WET tests that are conducted as a screen for toxicity in 100% effluent (acute tests) or the ACEC (chronic tests). No other effluent concentrations (except the control) are tested until toxicity has been detected in the effluent screening test. This saves the permittee money as long as the effluent is nontoxic. The effluent screening tests are about two-thirds to one-half the cost of a full dilution WET test. However, since the quality of the information is lower and repeating tests ends up being more expensive, it would be best to limit this option to dischargers that are likely to be nontoxic.

♦ The WET rule requires that samples, dilution water, and test solutions be handled as specified in the test method or the permit (WAC 173-205-080(1). Permittees who received permit language which is not consistent with the test method, Ecology Publication WQ-R-95-80 (Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria), or model permit language may request approval of alternative samples, dilution water, or test solutions (WAC 173-205-080(1)(c)).

5.10.2 Notification of an Anomalous Test Result

Ecology will be reviewing WET test results to see if these results are anomalous and should not be used for compliance determinations (WAC 173-205-070(5)(b)). Examples of anomalous WET test results include tests with a lower toxic response at higher effluent concentrations or a concentration-response which has no slope. A review for these kinds of WET test results will protect permittees from the consequences of noncompliance with a WET limit when the WET test itself was responsible for the appearance of noncompliance.

If the permittee believes that a compliance test failure will be identified by Ecology as an anomalous test result, the permittee may send Ecology 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 Ecology before completing the additional monitoring required in WAC 173-205-090(1). The notification must identify the reason for considering the compliance test result to be anomalous. Our definitions of anomalous tests are published in Ecology Publication WQ-R-95-80 (Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria). The permittee must complete all of the additional monitoring required by WAC 173-205-090(1) as soon as possible after notification by Ecology that the compliance test result was not anomalous. Ecology will review all compliance test results to determine if they are

anomalous regardless of whether or not they are accompanied by permittee notification that they may be anomalous.

5.10.3 Conducting a TI/RE

There are three options for permittees:

♦ A permittee may proceed directly to a TI/RE and not perform the additional testing (WAC 173-205-090(4)). Permittees that choose this option save themselves the expense of the additional monitoring and lessen the time between first detecting WET in excess of a limit and taking action to achieve compliance.

♦ If any WET test fails the compliance test during the additional monitoring conducted in accordance with WAC 173-205-090(1), then the permittee shall submit a plan for a TI/RE (WAC 173-205-100(2)). As a part of this plan, the permittee may request that Ecology allow up to six months before beginning the TI/RE 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 (WAC 173-205-100(2)(a)). Ecology approves the request in writing, and if the attempt is successful, then the permittee and Ecology are saved the time and expense of TI/RE plan review and implementation. However, since time and effort will be wasted if the attempt is unsuccessful, requests should only be approved for attempts that have a good chance of success.

♦ Ecology may approve the interruption of a TI/RE if toxicity has disappeared (WAC 173-205-110(1)). The permittee then returns to the routine monitoring schedule and takes enough extra sample each time to begin a TI/RE if the effluent fails the compliance test. If toxicity testing shows compliance with WET limits for one year after interruption of the TI/RE, then the permittee may cease taking the extra sample (WAC 173-205-110(2)). The approval letter for the TI/RE interruption should inform the permittee of the option to cease taking the extra sample after one year of compliance.

5.11 Species Selection for WET Testing

5.11.1 Acute WET Test Species

Selecting acute WET test species is fairly simple. Effluents with a risk for aquatic toxicity are tested at a minimum for toxicity to a fish, an invertebrate, and any appropriate plant (WAC 173-205-050(1)(a)). Because EPA has not provided any test for acute toxicity to plants, effluents can only be tested for acute toxicity using a fish and an invertebrate. If the effluent itself is freshwater, freshwater species are generally used for acute WET testing. Freshwater WET tests are more readily available and more convenient for TI/REs. The saltwater and freshwater acute WET tests do not differ significantly in sensitivity. However, discharges to saltwater of low hardness (< 50 mg/L) freshwater might be best tested using acute tests with saltwater organisms. Contact the Program Development Services Section if you want permit language for using acute tests with saltwater organisms.

CHOICE OF INVERTEBRATE. Daphnids are the standard freshwater invertebrate test organisms. The permittee or lab may choose the most convenient species (*Daphnia pulex*, *Daphnia magna*, or *Ceriodaphnia dubia*). The sensitivity to toxicity of these species is similar. WAC 173-205-050(1)(c) requires daphnid (or mysid) acute tests to be 48 hours in duration.

CHOICE OF FISH. WAC 173-205-050(1)(c) requires fish acute tests to be 96 hours in duration. Fathead minnow are recommended for acute WET testing for several reasons. Fathead minnows are sensitive test organisms; they were more sensitive than rainbow trout tested using the DOE 80-12 procedure. EPA has developed the freshwater WET testing program around the use of fathead minnows for fish testing. More labs around the country have experience with fathead minnow WET testing or fathead minnow toxicity identification/reduction evaluations (TI/REs) than any other fish. The national experience with fathead minnow TI/REs is much more extensive than with rainbow trout.

TI/REs will be more difficult and expensive with rainbow trout. The volume of effluent that must be sampled, shipped, and fractionated is much larger for a rainbow trout WET test or TI/RE than it is for fathead minnow. EPA protocols require about 20 times the volume of effluent for rainbow trout testing than fathead minnow testing. For example, it might require 5 liters of effluent for a fathead minnow TI/RE and 100 liters for a rainbow trout TI/RE. Taking a representative sample of 100 liters of effluent, shipping it, and performing the chemical manipulations required in a TI/RE will be more difficult and expensive to accomplish than it would be with 5 liters of effluent.

If you have decided to require acute WET testing with rainbow trout in order to provide direct protection of salmonids, it is recommended that you also require fathead minnow testing so that any TI/RE can be performed with fathead minnow. Each sample during effluent characterization will be tested using both of the fish and this information can be used to guide the fathead minnow TI/RE so that it also protects rainbow trout.

ACUTE TESTING OF SALINE EFFLUENTS. If the effluent is too saline for freshwater organisms, contact the Program Development Services Section to discuss acute WET tests with saltwater organisms.

5.11.2 Chronic WET Test Species

Unlike the situation with acute WET testing, permits for discharges to freshwater should have requirements for freshwater chronic WET tests, and permits for discharges to saltwater or brackish water should have requirements for saltwater chronic WET tests. Exceptions to this recommendation are allowable but should be discussed with the Program Development Services Section. Ecology Publication WQ-R-95-80 (Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria) has important extra detail on the chronic tests and their sublethal endpoints such as development, biomass, growth, reproduction, intrinsic rate of population increase, germination, etc. It also describes in detail the new supplemental chronic tests described below in subsection 5.11.3.

FRESHWATER CHRONIC WET TEST SPECIES. Chronic WET test species selection is fairly simple for discharges to freshwater. EPA recommends testing with a fish, an invertebrate, and a plant and has provided only one of each for freshwater chronic WET testing (fathead minnow, *Ceriodaphnia*, and *Selenastrum*). The new species name for *Selenastrum* is *Pseudokirchneriella subcapitata*. Effluents with a risk for aquatic toxicity should be tested for toxicity to a fish, an invertebrate, and if appropriate, a plant (WAC 173-205-050(1)(a)).

The WET Rule required testing with a plant only when deemed appropriate because the plant tests available in the early 1990s had deficiencies. Most of these deficiencies have now been resolved by improvements in the *Selenastrum* test and by inclusion in the EPA west coast manual of a good kelp

test. If you have the slightest suspicion that an effluent might be toxic to plants, use the model permit language that requires these plant tests.

SALTWATER CHRONIC WET TEST SPECIES. The selection of chronic WET test species for discharges to saltwater is complex for two main reasons:

♦ The reproduction of multicellular organisms in a marine environment usually begins with broadcast fertilization resulting in very small embryos and larvae which drift with the plankton. These early life stages of marine organisms are very sensitive to toxicity, and are part of the life cycle of most marine organisms including examples such as oysters, kelp, halibut, and crab. EPA has provided a larger list of chronic WET tests for protecting marine waters so effects on these sensitive early life stages could be assessed.
♦ The transition to west coast organisms is complete except for the mysid. The mysid in the EPA west coast manual cannot be cultured and must be caught in the wild for use in toxicity testing. Wild-caught organisms are less readily available, more expensive, and have an uncertain history. The east coast mysid is one of the more reliable test organisms and has been retained in the model permit language. All other saltwater test species are from the west coast manual.

Standard Fish and Invertebrate
Topsmelt (*Atherinops affinis*) and east coast mysid (*Americamysis bahia*)
The chronic WET tests with these two species should be included in all permits for discharges to saltwater. The level of protection provided by these two tests is similar to the protection provided by the freshwater chronic tests. The mysid test is an excellent test. When EPA studied the toxicity of 13 effluents from a wide variety of sources, they found the *Americamysis bahia* test to be the most sensitive of the tests in the marine chronic toxicity test manual 31% of the time. Another study found the *Americamysis bahia* test to be 42-times more sensitive than the average fish and crustacean in EPA's database of toxicity test results used in the development of the marine water quality criteria. When the minnow and mysid provide less than adequate protection, the permit should also contain a fertilization test, an embryo-larval development test, or the kelp germination and growth test. Permits containing WET testing requirements for only the fish and mysid meet the minimum requirement of WAC 173-205-050(1)(a).

Bivalve Embryo-Larval Survival and Development Test
Pacific oyster (*Crassostrea gigas*) or blue mussel (*Mytilus sp.*)
The bivalve embryo-larval development test is recommended for discharges to ecosystems of special importance or fragility. Put this chronic WET test into a permit along with the standard fish and invertebrate test when there is a risk of toxicity to sensitive larval life-stages of marine organisms. This test is especially appropriate for discharges to areas where mollusks are being cultivated or for discharges to breeding grounds for important marine organisms. This chronic WET test is often the most sensitive of all the tests, except to polycyclic aromatic hydrocarbons (PAHs).

Echinoderm Embryo-Larval Survival and Development Test
Sea urchin (*Strongylocentrotus purpuratus*) or sand dollar (*Dendraster excentricus*)
Put this chronic WET test into a permit along with the standard fish and invertebrate test when there is a risk of toxicity to sensitive larval life-stages of marine organisms. This chronic WET test is the most sensitive test to polycyclic aromatic hydrocarbons (PAHs). If an effluent contains PAHs and is discharged to a marine ecosystem of special importance or fragility, then the echinoderm development test should be required.

Echinoderm Fertilization Test
Sea urchin (*Strongylocentrotus purpuratus*) or sand dollar (*Dendraster excentricus*)
The echinoderm fertilization test has some advantages over the other WET tests. The combination of high sensitivity and short duration (forty minutes) is unique to this test. Very small volumes of effluent can be tested successfully and one spawning yields enough material for many tests. TI/REs with the echinoderm fertilization test are likely to be more convenient and successful than with other WET tests because of these advantages. The echinoderm fertilization test is an excellent rapid screening test. It is recommended that permit managers require the echinoderm fertilization test when both high sensitivity and ease of use are important.

Kelp Germination and Growth Test
Giant kelp (*Macrocystis pyrifera*)
If the discharge is to an area with kelp beds, water shallow enough to admit sunlight, or to a rocky area that should be capable of supporting kelp, then the kelp germination and growth test should be considered. This plant test is a sensitive and reliable test.

5.11.3 Supplemental Chronic WET Test Species

The Environment Canada Trout Embryo Viability and EPA Rainbow Trout 7-day Survival and Growth test methods are used in the evaluation of stormwater treatment chemicals and can be used in permits. The trout embryo test has withstood challenge in front of the PCHB. Because they do not qualify under WAC 173-205-050(1)(d), they cannot be used for effluent characterization or monitoring for compliance with any WET limit. They can be used in permits as monitoring tools for effluents or receiving waters and trigger TI/REs if needed. The TI/RE requirement has also withstood PCHB challenge. Contact the PDS Section if you want advice or permit language for these two trout tests.

Three Pacific herring (*Clupea pallasi*) toxicity tests have been developed for us at the Shannon Point Marine Center (SPMC) of Western Washington University. The three tests are a 16-day (7-day toxicant exposure) embryo development test, a 4-day acute test with yolk sac larvae, and a 7-day larval survival and growth test. These methods do not meet the conditions in WAC 173-205-050(1)(d) and cannot be used for compliance monitoring but have been put into several permits in order to assess the potential impacts of wastewater on the early life stages of Pacific herring. The herring tests are also used in the evaluation of ballast water biocides. Contact the PDS Section if you want advice or permit language for any of these herring tests.

5.12 Rapid Screening Test Selection

5.12.1 Acute Rapid Screening Tests

Rotifer, *Brachionus sp.* (ASTM E 1440-91). This test is a 24-hr acute test using rotifers hatched from cysts. Tests with organisms hatched from cysts are less expensive because no time or materials are consumed by maintaining a culture. This rotifer test is common in Europe and is accepted by ASTM. The rotifer test is a sensitive test (except to insecticides) and can be used in freshwater or saltwater.

24-hr EPA screening tests. If the permittee is uncomfortable with the rotifer test, you might consider the EPA 24-hr screening tests instead of the rotifer. The 24-hr EPA acute tests are conducted using the same EPA manual and species that were used for effluent characterization.

5.12.2 Chronic Rapid Screening Tests

Bacterial bioluminescence test (Microtox® or approved alternate).
Microtox® can screen more than one effluent sample at a time. The ability to test samples from several permittees at one time will lower the cost of Microtox®. Microtox® is a relatively inexpensive test and an economy of scale within any lab which tests frequent samples will bring the cost down even lower. This low cost will allow very high monitoring frequencies if necessary to catch episodes of effluent toxicity.

Snell, Terry W. 1992. A 2-d Life Cycle Test With The Rotifer *Brachionus calyciflorus*. *Environ. Toxicol. Chem.* 11:1249-1257.
The chronic rotifer test has good ecological relevance. The rotifer test measures the intrinsic rate of population increase. Measuring the intrinsic rate of population increase simultaneously assesses both mortality and reproduction. The chronic rotifer test is as ecologically relevant as any EPA chronic tests and about as sensitive as the *Ceriodaphnia* chronic test. Because it starts with rotifer cysts, uses small volumes of effluent, and only takes two days, it will be less expensive than EPA chronic tests. The rotifer test may not be sensitive to insecticides.

Echinoderm Fertilization Test
The combination of high sensitivity and short duration (40 minutes) is unique. Very small volumes of effluent can be tested successfully. Because the echinoderm fertilization test uses the same test protocol whether conducted for effluent characterization, compliance monitoring, or rapid screening, it is especially useful. It would be a very good rapid screening test.

5.13 Samples for WET Testing

5.13.1 Advantages of Grab Samples

The toxicity of an effluent sample begins changing at the time of sampling. Often the toxicity decreases, but it can also increase. These changes continue throughout the holding time. Composite sampling lengthens the holding time by 24 hours and allows more changes in toxicity to occur. In addition, composite samplers contain a large amount of surface area which enhances toxicant adsorption or reaction. Composite samplers must be cleaned frequently to prevent toxicant adsorption or reaction and the growth of bacteria which can infect the test organisms. The compositing process increases the opportunity for the escape of volatile toxicants. Changes in dissolved gases during compositing cause changes in pH which ultimately affect the chemistry and toxicity of the sample.

Properly taken grab samples minimize changes in chemistry and provide the most accurate measurement of toxicity. Grab samples can be taken quickly with a minimum of equipment, sealed in a container with no void space, cooled to 4° C, and sent directly to the lab for testing.

5.13.2 Advantages of Composite Samples

If toxicity varies unpredictably during a day, grab samples will not be representative unless the monitoring frequency is increased to compensate. (If toxicity varies over a time period longer than a day or produces a huge peak of toxicity for only a few hours out of twenty-four, then 24-hr composite sampling will also not be representative.) In addition, permittees can sometimes deliberately schedule grab sampling for times of day when the effluent is less likely to be toxic. 24-hr composites usually provide a representative sample of effluent toxicity. The toxicity highs and lows over a day are all represented in the sample. Composite samples are sometimes more difficult for permittees to schedule for times predicted to have low toxicity.

5.13.3 Recommended Sampling Technique

If the effluent chemistry or toxicity is consistent over time, use grab samples. If sampling can be scheduled for times of typical or peak effluent toxicity, use grab samples.

If grab samples will not be representative of effluent toxicity, use 24-hr composite sampling.

5.13.4 Sampling Chlorinated Effluents

For all chlorinated effluents, review WAC 173-205-080 to determine whether to test unmodified final effluent, test dechlorinated final effluent, or test a sample taken just prior to the chlorinator. Samples for WET should be taken before the chlorinator for discharges which can meet water quality-based effluent limits for chlorine and have an ACEC below 25% effluent. If the ACEC is 25% effluent or higher, the effluent is sampled after the chlorinator because extra control on chlorine is needed due to the effluent-dominated receiving water. If the treatment plant will begin dechlorination within two years, then the sample may be dechlorinated at the lab.

5.13.5 Low Hardness Samples

Model permit language now contains an option to allow dischargers of low hardness (< 50 mg/L) effluent to sample receiving water at the same time and instruct the lab to increase the hardness of the effluent sample to match the hardness of the receiving water sample prior to beginning the toxicity test. If hardness is significantly lower in a sample than in the receiving water, metals toxicity in the test will be significantly greater than in the environment. Low hardness by itself might reduce *Ceriodaphnia* reproduction or increase sporadic mortalities due to disease in fathead minnows. The use of a low hardness sample will produce a hardness gradient in the test concentrations with hardness declining as effluent concentration increases and make it difficult to screen for adverse effects due to low hardness. In other words, adverse effects due to the hardness gradient will mimic toxicity.

If you are managing a permit that does not yet have the language allowing low hardness samples to have hardness increased to match the receiving water, the permit likely says to "test an unmodified sample of final effluent." Keep in mind that effluent samples from discharges to saltwater have always had salinity increased to about 30‰ to avoid adverse effects due to a declining salinity gradient across test concentrations even though the permit said to test an unmodified effluent sample. Therefore, it is probably OK to allow any discharger of low hardness effluent to adjust the hardness to match the receiving water. This both makes sense for low hardness discharges to freshwater and provides consistency with the standard practice for saltwater testing.

5.14 Managing Effluent Characterization Results

5.14.1 Whole Effluent Toxicity Information Assistance

As a service to permit managers and permittees, the Water Quality Program purchased CETIS in order to be able to provide quality assurance of WET test results and maintain a database able to support permitting decisions. CETIS is computer software that creates a record in a database of each toxicity test and can automatically perform the statistical procedures in the EPA test manuals. CETIS also allows queries of the database to produce tables of the WET test results for each permittee.

The step of the information management system is getting quality records of each permittee's WET test results into the database. Achieving quality records requires a review of each WET test, entry of the test into CETIS, and performance of the proper statistics. After the record of WET test results is completed for a permittee, then the database can be queried to produce a table of effluent characterization test results that will assist permittees and permit managers during permit renewal. The production of an accurate table of the numbers to be used for regulatory determinations for each permittee is the ultimate goal of the information management system.

Permit managers should utilize the services of the Program Development Services Section for information management of WET. The PDS Section evaluates every test before entering into the data base. Data entered into CETIS is assured of using the proper statistics. Only WET test results produced from CETIS should be considered accurate.

The PDS Section will, upon request, provide summary data of their test results to permittees. Therefore, it is essential that all WET data be entered into CETIS and that permittees and permit managers receive the same summary information.

5.14.2 Getting Complete Effluent Characterizations

If an effluent characterization is not adequate for making regulatory determinations under the WET rule, there are several possible solutions. For example, every permittee who is regulated under the WET rule, has no WET limits, and conducts no rapid screening testing is required to submit a set of WET tests with each permit application [WAC 173-205-030(8)]. Most of the permittees currently fit this situation, and when they are informed of the requirement to submit a set of WET tests with the permit application, the WET tests could be chosen to complete any inadequate effluent characterization. The PDS Section can advise permit managers on how to use this requirement to supplement inadequate effluent characterizations with a minimum of extra effort by permittees. This assistance will be most valuable if permit managers contact the PDS Section six months prior to the application time.

Table VI-6 . Chemical screening list for WET testing. (40 CFR 403, Appendix C)

Acenaphthene
Acenaphthylene
Acetaldehyde
Acetic acid
Acetic acid (2,4-dichlorophenoxy)
Acetic acid, lead(2+) salt
Acetic acid, (2,4,5-trichlorophenoxy)
Acetic anhydride
Acetone cyanohydrin
Acetyl bromide
Acetyl chloride
Acrolein
Acrylonitrile
Aldrin
Allyl alcohol
Allyl chloride
Aluminum sulfate
Ammonia
Ammonium acetate
Ammonium benzoate
Ammonium bicarbonate
Ammonium bichromate
Ammonium bifluoride
Ammonium bisulfite
Ammonium carbamate
Ammonium carbonate
Ammonium chloride
Ammonium chromate
Ammonium citrate, dibasic
Ammonium fluoborate
Ammonium fluoride
Ammonium hydroxide
Ammonium oxalate
Ammonium silicofluoride
Ammonium sulfamate
Ammonium sulfide
Ammonium sulfite
Ammonium tartrate
Ammonium thiocyanate
Amyl acetate
Aniline
Antimony pentachloride
Antimony potassium tartrate
Antimony tribromide
Antimony trichloride
Antimony trifluoride
Antimony trioxide
Aroclor 1016
Aroclor 1221
Aroclor 1232
Aroclor 1242
Aroclor 1248
Aroclor 1254
Aroclor 1260
Arsenic
Arsenic disulfide
Arsenic oxide As2O3
Arsenic oxide As2O5
Arsenic pentoxide
Arsenic trichloride
Arsenic trioxide
Arsenic trisulfide
Asbestos
Barium cyanide
Benz[a]anthracene
1,2-Benzanthracene
Benzenamine
Benzene
Benzene, 1-bromo-4-phenoxy-
Benzene, chloro-
Benzene, chloromethyl-
1,2-Benzenedicarboxylic acid, dioctyl ester
1,2-Benzenedicarboxylic acid, [bis(2-ethylhexyl)]-
1,2-Benzenedicarboxylic acid, dibutyl ester
1,2-Benzenedicarboxylic acid, diethyl ester
1,2-Benzenedicarboxylic acid, dimethyl ester
Benzene, 1,2-dichloro-
Benzene, 1,3-dichloro-
Benzene, 1,4-dichloro-
Benzene, 1,1'-(2,2-dichloroethylidene)bis[4-chloro-
Benzene, dimethyl
1,3-Benzenediol
Benzene, hexachloro-
Benzene, hexahydro-
Benzene, hydroxy-
Benzene, methyl-
Benzene, 2-methyl-1,3-dinitro-
Benzene, 1-methyl-2,4-dinitro-
Benzene, nitro-
Benzene, 1,1'-(2,2,2-tri-chloroethylidene)bis[4-chloro-
Benzene,

1,1'-(2,2,2-trichloroethylidene) bis[4-methoxy-
Benzidine
Benzol[a]anthracene
Benzo[b]fluoranthene
Benzo(k)fluoranthene
Benzo[j,k]fluorene
Benzoic acid
Benzonitrile
Benzo[ghi]perylene
Benzo[a]pyrene
3,4-Benzopyrene
Benzoyl chloride
1,2-Benzphenanthrene
Benzyl chloride
Beryllium
Beryllium chloride
Beryllium fluoride
Beryllium nitrate
alpha-BHC
beta-BHC
delta-BHC
gamma-BHC
(1,1'-Biphenyl)-4,4'diamine
[1,1'-Biphenyl]-4,4'diamine, 3,3'dichloro-
Bis (2-chloroethyl) ether
Bis (2-ethylhexyl)phthalate
Bromoform
4-Bromphenyl phenyl ether
1,3-Butadiene, 1,1,2,3,4,4-hexachloro-
2-Butenal
Butyl acetate
Butylamine
Butyl benzyl phthalate
n-Butyl phthalate
Butyric acid
Cadmium
Cadmium acetate
Cadmium bromide
Cadmium chloride
Calcium arsenate
Calcium arsenite
Calcium carbide
Calcium chromate
Calcium cyanide
Calcium cyanide Ca(CN)2
Calcium dodecylbenzenesulfonate
Calcium hypochlorite
Camphene, octachloro-
Carbaryl
Carbofuran
Carbon disulfide
Carbon tetrachloride
Carbonic dichloride
Chlordane
Chlordane, alpha & gamma isomers
Chlordane, technical
CHLORINATED BENZENES
CHLORINATED ETHANES
CHLORINATED NAPHTHALENE
CHLORINATED PHENOLS
Chlorine
CHLOROALKYL ETHERS
Chlorobenzene
4-Chloro-m-cresol
p-Chloro-m-cresol
Chlorodibromomethane
Chloroethane
2-Chloroethyl vinyl ether
Chloroform
beta-Chloronaphthalene
2-Chloronaphthalene
2-Chlorophenol
o-Chlorophenol
4-Chlorophenyl phenyl ether
Chlorosulfonic acid
Chlorpyrifos
Chromic acetate
Chromic acid
Chromic acid H2CrO4, calcium salt
Chromic sulfate
Chromium
Chromous chloride
Chrysene
Cobaltous bromide
Cobaltous formate
Cobaltous sulfamate
Copper
Coumaphos
Cresol(s)
Cresylic acid
Crotonaldehyde
Cupric acetate
Cupric acetoarsenite
Cupric chloride
Cupric nitrate
Cupric oxalate
Cupric sulfate
Cupric sulfate, ammoniated
Cupric tartrate
Cyanogen chloride

Cyanogen chloride (CN)Cl
Cyclohexane
Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1 alpha,2alpha,3beta,4alpha,5alpha,6beta)-
1,3-Cyclopentadiene, 1,2,3,4,5,5-hexachloro-
2,4-D Acid
2,4-D Ester
2,4-D, salts and esters
DDD
4,4' DDD
DDE
4,4' DDE
DDT
4,4'DDT
Diazinon
Dibenz[a,h]anthracene
1,2:5,6-Dibenzanthracene
Dibenzo[a,h]anthracene
Dibutyl phthalate
Di-n-butyl phthalate
Dicamba
Dichlobenil
Dichlone
Dichlorobenzene
1,2-Dichlorobenzene
1,3-Dichlorobenzene
1,4-Dichlorobenzene
m-Dichlorobenzene
o-Dichlorobenzene
p-Dichlorobenzene
3,3'-Dichlorobenzidine
Dichlorobromomethane
1,1-Dichloroethane
1,2-Dichloroethane
1,1-Dichloroethylene
1,2-Dichloroethylene
Dichloroethyl ether
Dichloroisopropyl ether
Dichloromethoxy ethane
2,4-Dichlorophenol
Dichloropropane
1,2-Dichloropropane
Dichloropropane-Dichloropropene (mixture)
Dichloropropene
1,3-Dichloropropene
2,2-Dichloropropionic acid
Dichlorvos
Dicofol
Dieldrin
Diethylamine
Diethylhexyl phthalate
Diethyl phthalate
Dimethylamine
2,4-Dimethylphenol
Dimethyl phthalate
Dinitrobenzene (mixed)
4,6-Dinitro-o-cresol and salts
Dinitrophenol
Dinitrotoluene
2,4-Dinitrotoluene
2,6-Dinitrotoluene
Di-n-octyl phthalate
1,2-Diphenylhydrazine
Diphosphoric acid, tetraethyl ester
Di-n-propylnitrosamine
Diquat
Diuron
Dodecylbenzenesulfonic acid
Endosulfan
alpha - Endosulfan
beta - Endosulfan
Endosulfan sulfate
Endrin
Endrin aldehyde
Endrin, & metabolites
Epichlorohydrin
Ethanal
Ethane, 1,2-dibromo-
Ethane, 1,1-dichloro-
Ethane, 1,2-dichloro-
Ethane, 1,1'-oxybis[2-chloro-
Ethane, 1,1,2,2-tetrachloro-
Ethane, 1,1,1-trichloro-
Ethane, 1,1,2-trichloro-
Ethene, chloro-
Ethene, 2-chloroethoxy-
Ethene, 1,1-dichloro-
Ethene, 1,2-dichloro- (E)
Ethene, tetrachloro-
Ethene, trichloro-
Ethion
Ethylbenzene
Ethylenediamine
Ethylenediamine-tetraacetic acid (EDTA)
Ethylene dibromide
Ethylene dichloride
Ethylidene dichloride
Ferric ammonium citrate
Ferric ammonium oxalate
Ferric chloride

Ferric fluoride
Ferric nitrate
Ferric sulfate
Ferrous ammonium sulfate
Ferrous chloride
Ferrous sulfate
Fluoranthene
Fluorene
Formaldehyde
Formic acid
Fumaric acid
2-Furancarboxaldehyde
2,5-Furandione
Furtural
Guthion
Heptachlor
Heptachlor epoxide
Hexachlorobenzene
Hexachlorobutadiene
HEXACHLOROCYCLOHEXANE (all isomers)
Hexachlorocyclohexane (gamma isomer)
Hexachlorocyclopentadiene
Hexachloroethane
Hydrazine, 1,2-diphenyl-
Hydrochloric acid
Hydrocyanic acid
Hydrofluoric acid
Hydrogen chloride
Hydrogen cyanide
Hydrogen fluoride
Hydrogen sulfide
Hydrogen sulfide H2S
Indeno(1,2,3-cd)pyrene
Isophorone
Isoprene
Isopropanolamine dodecylbenzenesulfonate
Kepone
Lead
Lead acetate
Lead arsenate
Lead chloride
Lead fluoborate
Lead fluoride
Lead iodide
Lead nitrate
Lead stearate
Lead sulfate
Lead sulfide
Lead thiocyanate
Lindane
Lithium chromate
Malathion
Maleic acid
Maleic anhydride
Mercaptodimethur
Mercuric cyanide
Mercuric nitrate
Mercuric sulfate
Mercuric thiocyanate
Mercurous nitrate
Mercury
Methanamine, N-methyl-
Methanamine, N-methyl-N-nitroso-
Methane, bromo-
Methane, chloro-
Methane, dichloro-
Methane, tetrachloro-
Methane, tribromo-
Methane, trichloro-
Methanethiol
Methoxychlor
Methyl bromide
Methyl chloride
Methyl chloroform
Methylene chloride
2-Methyllactonitrile
Methylmercaptan
Methyl methacrylate
Methyl parathion
Mevinphos
Mexacarbate
Monoethylamine
Naled
Naphthalene
Naphthalene, 2-chloro-
Naphthenic acid
Nickel
Nickel ammonium sulfate
Nickel chloride
Nickel hydroxide
Nickel nitrate
Nickel sulfate
Nitric acid
Nitrobenzene
Nitrogen dioxide
Nitrogen oxide NO2
Nitrophenol (mixed)
o-Nitrophenol
p-Nitrophenol
2-Nitrophenol

4-Nitrophenol
N-Nitrosodimethylamine
N-Nitrosodiphenylamine
Nitrotoluene
Oxirane, (chloromethyl)-
Paraformaldehyde
Parathion
Pentachlorophenol
Perchloroethylene
Phenanthrene
Phenol
Phenol, 2-chloro-
Phenol, 4-chloro-3-methyl-
Phenol, 2,4-dichloro-
Phenol, 2,4-dimethyl-
Phenol, 2,4-dinitro-
Phenol, methyl-
Phenol, 2-methyl-4,6-dinitro-
Phenol, 4-nitro-
Phenol, pentachloro-
Phenol, 2,4,5-trichloro-
Phenol, 2,4,6-trichloro-
Phosgene
Phosphoric acid
Phosphorothioic acid,
O,O-dimethyl O-(4-nitrophenyl) ester
Phosphorus
Phosphorus oxycloride
Phosphorus pentasulfide
Phosphorus sulfide
Phosphorus trichloride
Plumbane, tetraethyl-
Potassium arsenate
Potassium arsenite
Potassium bichromate
Potassium chromate
Potassium cyanide
Potassium cyanide (K(CN)
Potassium hydroxide
potassium permanganate
1-Propanamine, N-nitroso-N-propyl-
Propane, 1,2-dichloro-
Propanenitrile, 2-hydroxy-2-methyl-
Propane, 2,2'-oxybis[2-chloro-
Propargite
2-Propenal
1-Propene, 1,3-dichloro-
2-Propenenitrile
2-Propenoic acid, 2-methyl-, methyl ester
2-Propen-1-ol
Propionic acid
Propionic anhydride
Propylene dichloride
Propylene oxide
Pyrene
Pyrethrins
Quinoline
Resorcinol
Selenium
Selenium dioxide
Selenium oxide
Silver
Silver nitrate
Silvex (2,4,5-TP)
Sodium
Sodium arsenate
Sodium arsenite
Sodium bichromate
Sodium bifluoride
Sodium bisulfite
sodium chromate
Sodium cyanide
Sodium cyanide Na (CN)
Sodium dodecylbenzenesulfonate
Sodium fluoride
Sodium hydrosulfide
Sodium hydroxide
Sodium hypochlorite
Sodium methylate
Sodium nitrite
Sodium phosphate, dibasic
Sodium phosphate, tribasic
Sodium selenite
Strontium chromate
Strychnidin-10-one
Strychnine, & salts
Styrene
Sulfur monochloride
Sulfur phosphide
Sulfuric acid
Sulfuric acid, dithallium (1+) salt
2,4,5-T acid
2,4,5-T amines
2,4,5-T esters
2,4,5-T salts
2,4,5-T
TDE
Tetraethyl lead
Tetraethyl pyrophosphate
Thallium

Thallium (1) sulfate
Thiomethanol
Toluene
Toxaphene
2,4,5-TP acid
2,4,5-TP esters
Trichlorfon
1,2,4-Trichlorobenzene
1,1,1-Trichloroethane
1,1,2-Trichloroethane
Trichloroethene
Trichloroethylene
Trichlorophenol
2,4,5-Trichlorophenol
2,4,6-Trichlorophenol
2,4,5-Trichlorophenol
2,4,6-Trichlorophenol
Triethanolamine dodecylbenzenesulfonate
Triethylamine
Trimethylamine
Uranyl acetate
Uranyl nitrate
Vanadium oxide V205
Vanadium pentoxide
Vanadyl sulfate
Vinyl chloride
Vinyl acetate
Vinyl acetate monomer
Vinylidene chloride
Xylene (mixed)
Xylenol
Zinc
Zinc acetate
Zinc ammonium chloride
Zinc borate
Zinc bromide
Zinc carbonate
Zinc chloride
Zinc cyanide
Zinc cyanide Zn(CN)2
Zinc fluoride
Zinc formate
Zinc hydrosulfite
Zinc nitrate
Zinc phenosulfonate
Zinc phosphide
Zinc silicofluoride
Zinc sulfate
Zirconium nitrate
Zirconium potassium fluoride
Zirconium sulfate
Zirconium tetrachloride

APPENDIX K

unless anyone wants it. Does anyone care if it's an exhibit?

MS. BARNEY: It was introduced last time.

BY MR. SMITH:

Q. So in here, I already pointed to the language in 173-205-070(1)(d) that says, "The compliance test for acute toxicity shall be considered to be a maximum daily discharge permit limitation," and that's -- that language is this S7.A, right; that's what this is talking about?

A. Yes.

Q. And I also see in here 173-205-090, which is called "Response to noncompliance with whole effluent toxicity limits," and that describes in section subparagraph (2) of that, it says, "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."

So doesn't this regulation that you wrote say that when a permittee violates a compliance test for acute toxicity, which is a maximum daily discharge permit regulation, the way that they restore compliance with that effluent limitation is by doing the TI/RE?

MS. GINSBERG: Object to the extent you are asking him to give you a legal conclusion.

MS. BARNEY: Join.

THE WITNESS: In a general way, the TI/RE could accomplish -- could be a number of different actions, and yes.

So to that extent, the TI/RE defined broadly is -- you know, and it may be nothing more than changing a material or adjusting treatment or it may involve a TIE. It is a very, very broad term.

That said, yes, that's generally the mechanism described for finding and fixing toxicity.

BY MR. SMITH:

Q. For restoring compliance with maximum daily effluent limitation, right?

A. Yes.

Q. So this regulation, 173-205A, was effective in 1993, right?

A. Yeah, I do believe so.

Q. And so you must have been involved in writing it for a couple of years before that date, right?

A. Well, actually, it was a -- it was a fairly quick process. A couple years, one to two years.

Q. When did you come up with the idea to use the structure that we've been talking about in NPDES permits to implement this? And by that I mean the structure where the permittee continues, stays, maintains

compliance with the permit despite being in violation of the effluent limitation for acute toxicity by doing the TI/RE and the follow-up monitoring. When did you come up with that?

A. It was a couple of years following the effective date of the WAC 173-205. During my rulemaking, one of the many needs that I met in writing it was the need for a very defined process.

That was one of the few things where both the environmentalists and the permittees could agree: Would you please tell us in a definite way what is going to happen based upon results of the whole effluent toxicity test.

So I laid it out in detail, and that then lent itself to a concept of self-driving permit language, and then so we -- which means -- now, that was just for an internal need. Our facility managers didn't want to have to interrupt their workload to write an order or something like that to implement a TI/RE, for example.

So we decided it's explicit enough in the regulation, we can make it explicit in permit language and that should work. So we did that.

And then we noticed that the last cap on this could be to make the process the point rather than the limit the point, and that would benefit everybody, both

APPENDIX L

and only to monitoring using test procedures approved under 40 CFR Part 136, or another method required for an industry specific waste stream under 40 CFR subchapters.

E. Reporting Permit Violations

The Permittee must take the following actions when it violates or is unable to comply with any permit condition:

a. Immediately take action to stop, contain, and cleanup unauthorized discharges or otherwise stop the noncompliance and correct the problem.
b. If applicable, immediately repeat sampling and analysis. Submit the results of any repeat sampling to Ecology within thirty (30) days of sampling.

1. Immediate Reporting

The Permittee must report any collection system overflows which may reach surface waters or any plant bypass discharging to a shellfish area immediately to the Department of Ecology, the Department of Health, and Shellfish Program at the numbers listed below:

Department of Ecology, Northwest Regional Office	425-649-7000 (24 hours)
Department of Health, Shellfish Program	1-800-521-0323 (business hours) 1-877-481-4901 (after business hours)

The Permittee must also notify the Ecology Industrial Section permit manager by telephone for any of the above situations. Outside of normal working hours, a voice mail notification to the Industrial Section permit manager or their designated backup will meet this requirement.

2. Twenty-four-hour Reporting

The Permittee must report the following occurrences of noncompliance by telephone, to Ecology at the telephone numbers listed above, within 24 hours from the time the Permittee becomes aware of any of the following circumstances:

a. Any noncompliance that may endanger health or the environment, unless previously reported under subpart 1, above.

b. Any unanticipated **bypass** that exceeds any effluent limitation in the permit (See Part S4.B., "Bypass Procedures").

c. Any **upset** that exceeds any effluent limitation in the permit (See G.15, "Upset").

d. Any violation of a maximum daily or instantaneous maximum discharge limitation for any of the pollutants in Section S1.A of this permit.

b. For probable construction bypasses, the Permittee must notify Ecology of the need to bypass as early in the planning process as possible. The Permittee must consider the analysis required above during preparation of the engineering report or facilities plan and plans and specifications and must include these to the extent practical. In cases where the Permittee determines the probable need to bypass early, the Permittee must continue to analyze conditions up to and including the construction period in an effort to minimize or eliminate the bypass.

c. Ecology will consider the following prior to issuing an administrative order for this type of bypass:

- If the bypass is necessary to perform construction or maintenance-related activities essential to meet the requirements of this permit.
- If feasible alternatives to bypass exist, such as the use of auxiliary treatment facilities, retention of untreated wastes, stopping production, maintenance during normal periods of equipment down time, or transport of untreated wastes to another treatment facility.
- If the Permittee planned and scheduled the bypass to minimize adverse effects on the public and the environment.

After consideration of the above and the adverse effects of the proposed bypass and any other relevant factors, Ecology will approve or deny the request. Ecology will give the public an opportunity to comment on bypass incidents of significant duration, to the extent feasible. Ecology will approve a request to bypass by issuing an administrative order under RCW 90.48.120.

C. Duty to Mitigate

The Permittee is required to take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit that has a reasonable likelihood of adversely affecting human health or the environment.

S5. FACILITY LOADING

A. Design Criteria

The flows or waste loads for the permitted facility must not exceed the following design criteria:

Parameter	Design Quantity
Daily Maximum Flow from the Secondary Clarifier	13 MGD
Daily Maximum BOD_5 Influent Loading to Aeration Tank	25,160 lbs/day

B. Plans for Maintaining Adequate Capacity

The Permittee must submit to Ecology a plan and a schedule for continuing to maintain capacity when:

1. The actual flow or waste load reaches 85 percent of any one of the design criteria in S5.A for three consecutive months; or

2. The projected increase would reach design capacity within five years, whichever occurs first.

If such a plan is required, it must contain provisions and a schedule for continuing to maintain capacity. The capacity as outlined in this plan must be sufficient to achieve the effluent limitations and other conditions of this permit. The plan must address the following actions and any others necessary to meet the objective of maintaining capacity.

1. Analysis of the present design including the introduction of any process modifications that would affect the ability of the existing facility to achieve effluent limits and other requirements of this permit at levels in excess of the existing design criteria specified in paragraph A, above.

2. Reduction or elimination of excessive infiltration and inflow into the sewer system.

3. Limitation on future additional waste loads.

4. Modification or expansion of facilities necessary to accommodate increased flow or waste load.

Engineering documents associated with the plan must meet the requirements of WAC 173-240-060, "Engineering Report," and be approved by Ecology prior to any construction.

S6. NON-ROUTINE AND UNANTICIPATED DISCHARGES

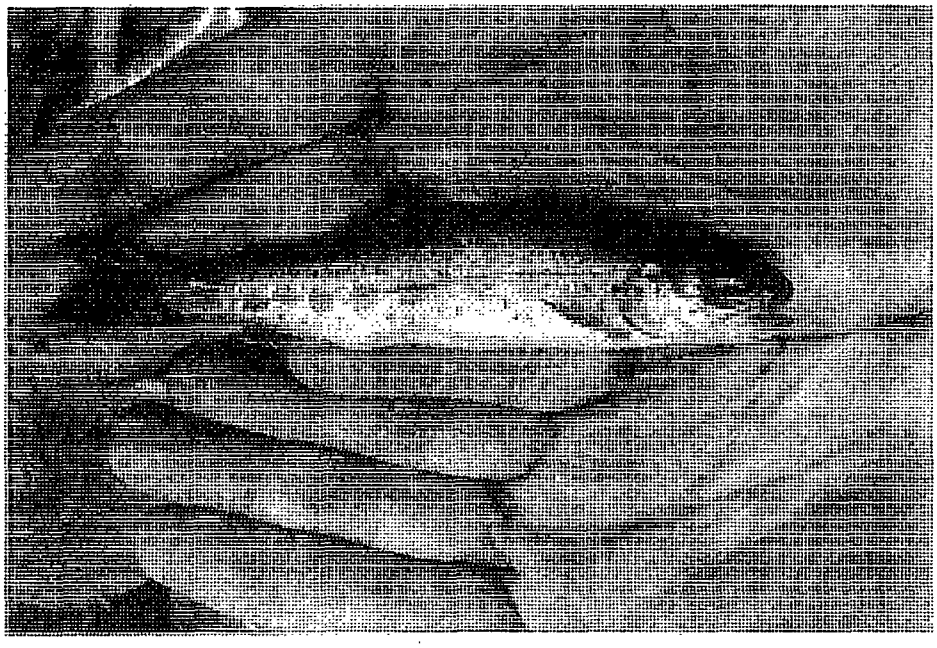
A. Beginning on the effective date of this permit, the Permittee may discharge non-routine wastewater or clean water such as storage tank hydro test water or fire system test water from Outfalls 002, 003, and 007 on a case-by-case basis if approved by Ecology. Prior to any such discharge, the Permittee must contact Ecology and **at a minimum** provide the following information:

1. The proposed discharge location.

2. The nature of the activity that will generate the discharge.

3. Any alternatives to the discharge, such as reuse, storage, or recycling of the water.

APPENDIX M



Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria

DEPARTMENT OF
ECOLOGY
State of Washington

Revised December 2008
Publication no. WQ-R-95-80

Publication and Contact Information

This report is available on the Department of Ecology's website at
http://www.ecy.wa.gov/biblio/9580.html

For more information contact:

Water Quality Program
P.O. Box 47600
Olympia, WA 98504-7600

Washington State Department of Ecology -
http://www.ecy.wa.gov/programs/wq/wet/

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o Northwest Regional Office, Bellevue	(425) 649-7000
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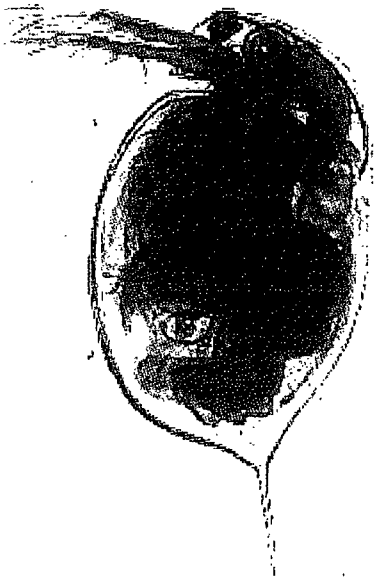
Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria

by
Randall Marshall

Water Quality Program
Washington State Department of Ecology
Olympia, Washington 98504-7710

Daphnid photos courtesy of
Rowe,C.L. and Hebert, P.D.N. 1999. **Cladoceran Web Site.** University of Guelph. Canada.
http://www.cladocera.uoguelph.ca/



Daphnia magna

Daphnia minnehaha

Failed tests must amuse them.

Oncorhynchus mykiss and *Cyprinus carpio* courtesy of
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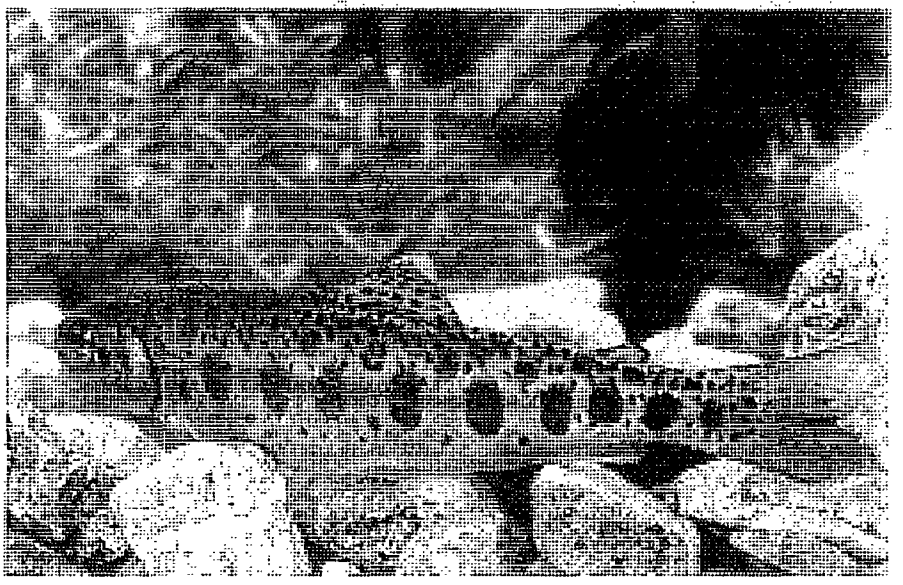

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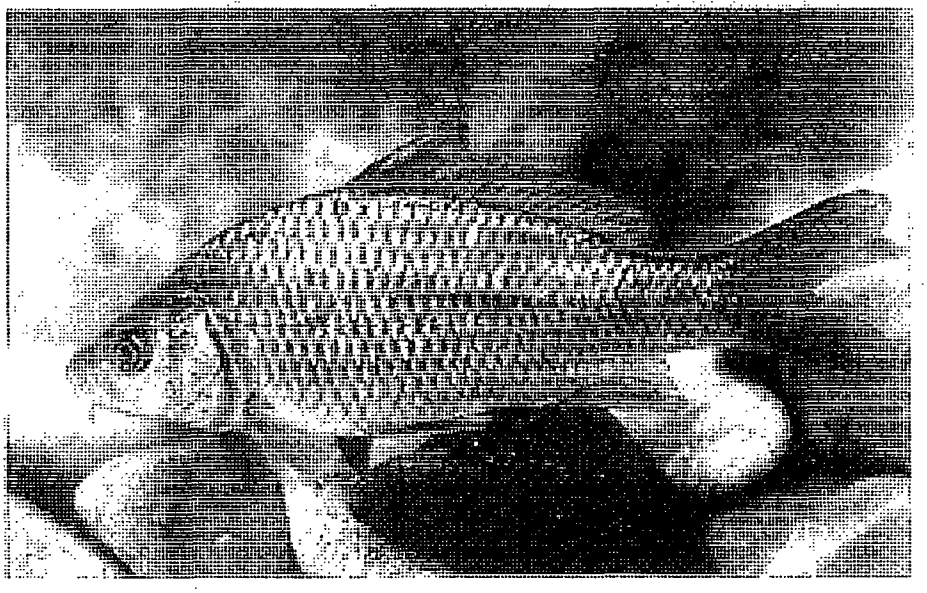

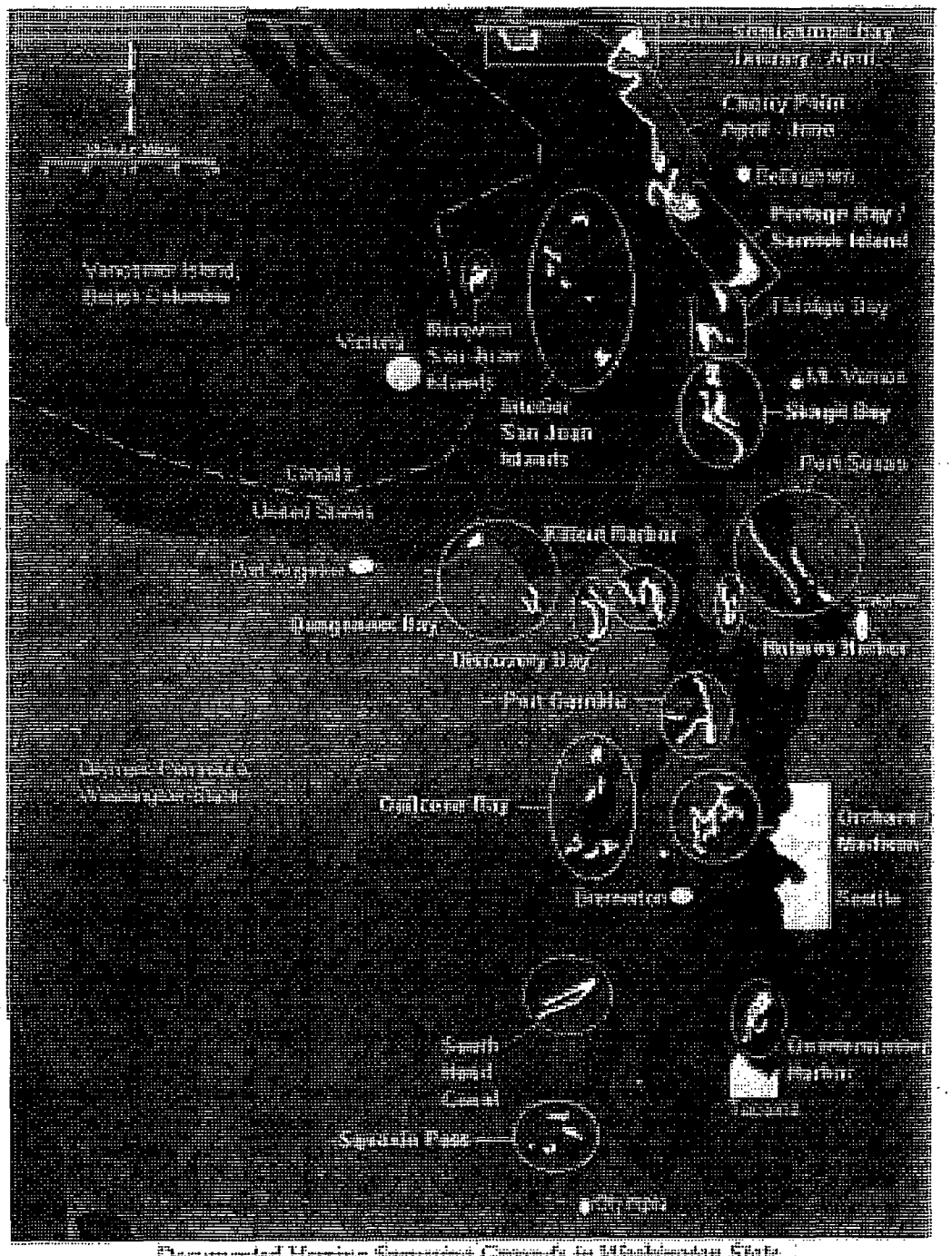

Documented Herring Spawning Grounds in Washington State
Washington Department of Fish and Wildlife
http://wdfw.wa.gov/fish/forage/herring.htm

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I. Whole Effluent Toxicity Testing Regulatory Guidance

A. Introduction

The authority for whole effluent toxicity (WET) activities in Washington State comes from RCW 90.48.520, chapter 173-205 WAC (the WET rule), and the state water quality standards (chapter 173-201A WAC). Interested persons can access these laws and rules online at:

http://www.ecy.wa.gov/laws-rules/index.html

RCW 90.48.520 directs the Department of Ecology (Ecology) to require all known, available, and reasonable methods to control effluent toxicity in order to improve water quality regardless of whether it already meets minimum water quality standards.

We implemented this directive by writing chapter 173-205 WAC so that the need for an acute WET limit is determined by survival in 100% effluent. As long as 100% effluent consistently has at least 65% survival, no acute WET limit will be required. The 65% survival cutoff is based upon data showing that a large majority of WET tests have from 65% to 100% survival in 100% effluent. A significant minority of tests show 0% survival in 100% effluent, but few tests show survival between 65% and 0%. Dilution is a factor in setting acute WET limits but is not considered in requiring them. Our intention is to create an incentive to completely eliminate acute WET.

Chronic WET tests are expensive and have too many diverse sublethal endpoints to justify an attempt to eliminate chronic WET. Our goal for chronic WET testing is solely to maintain compliance with water quality standards.

B. WET Testing Requirements in NPDES Permits

National Pollutant Discharge Elimination System (NPDES) permits describe how provisions in the WET rule apply to each individual permittee. Labs should follow the instructions in a client's permit. It is important that labs get a copy of the toxicity testing pages of a permit in order to provide the best service. Permits are available from a client or online at:

http://www.ecy.wa.gov/programs/wq/permits/index.html#wastewater_individual_permits

Permit Language

Permit language for WET can be complicated because it will contain a series of steps in a regulatory process. The step to follow will depend at times on the results of the previous step. The permit might contain two sets of instructions, but only require that one set be followed depending on circumstances. This permit language avoids the expense of modifying permits, but will require careful reading and planning ahead by labs and permittees.

Effluent Characterization

Effluent characterizations last for one year and are used to determine whether WET limits are needed. After effluent characterization is complete, a permittee might receive an acute WET limit, a chronic WET limit, both, or no WET limit. Each effluent sample in effluent characterization is tested with all WET test species listed in the permit. This "multiple species" testing provides an assessment of effluent sample toxicity to different aquatic organisms.

Permittees who cannot meet the WET performance standards defined in the WET rule will receive WET limits. For acute toxicity, the performance standard is a median of 80% survival in 100% effluent at the end of effluent characterization with no single test result showing less than 65% survival in 100% effluent. For chronic toxicity, the performance standard is no statistically significant difference during effluent characterization in test organism response between the control and a test concentration equal to the concentration of effluent at the edge of the acute mixing zone (acute critical effluent concentration or ACEC).

If a mixing zone has not been established for the discharge at the time of permit writing, the ACEC will not be known during effluent characterization. When the ACEC is unknown, WET testing during effluent characterization will determine the NOEC (no observed effect concentration). The NOECs will be compared to the ACEC, when it becomes known, to determine if a chronic WET limit is needed. If the ACEC is still unknown at the end of effluent characterization, then effluent characterization will be extended, but only one WET test will be conducted on each sample ("single species" testing).

It is in the permittee's best interest to include the ACEC in the dilution series as soon as it becomes known because the permittee will be at a regulatory disadvantage whenever the ACEC would have been located between the LOEC (lowest observed effects concentration) and NOEC if it had been included in the test. The usual policy in circumstances when a known ACEC was missing from the concentration series and would have been straddled by the NOEC and LOEC is to consider the ACEC to be toxic. However, the percent minimum significant difference (MSDp) can be used as the effect level in a point estimate (IC_{xx} or EC_{xx}) and the result compared to the absent ACEC or CCEC (chronic critical effluent concentration) to roughly estimate if either of these concentrations would have been significantly different from the control. We will use the MSDp for this purpose on rare occasions when the ACEC or CCEC was inadvertently or accidentally absent from the concentration series and bracketed by the NOEC/LOEC.

Effluent characterization is also used to establish a baseline toxicity level expressed by point estimates such as the LC_{50}, EC_{50}, or IC_{25}. These point estimates will not be used in determining compliance, but will serve as a point of reference if problems with toxicity need to be investigated. WET tests conducted for effluent characterization must have a dilution series of at least five effluent concentrations in order to provide point estimates.

Monitoring for Compliance with WET Limits

The state's water quality standards prohibit toxicity past the edge of an approved mixing zone. Therefore, WET limits are based on the concentration of effluent at the edge of an approved mixing zone during critical conditions. Critical conditions are situations when the effect of the effluent is greatest such as during low river flow. The concentration of effluent existing at the edge of a mixing zone during critical conditions is called the critical effluent concentration. Compliance with a WET limit means demonstrating no toxicity in a sample of effluent diluted to equal the critical effluent concentration. The ACEC used to test for compliance with an acute