

**Candidate Water Quality Standards – NPDES Implementation Tools
March 2012**

BACKGROUND/STARTING POINT/ASSUMPTIONS

1. While it may be unavoidable, the selection of a higher FCR, leading to more stringent human health-based water quality criteria (HHWQC), then waterbody evaluations to support 303(d) Category 5 listings, TMDL development, imposition of waste load allocations in NPDES permits, the setting of a water quality-based effluent limitation, development of a compliance schedule, evaluation and implementation of treatment technology, etc., is a very inefficient and long timeframe process to achieve what will likely be an inconsequential reduction in toxics discharges (at least for earth metals and legacy pollutants). Although this outcome will look good on paper, the reality of actually reducing the toxics load in fish/shellfish could be questioned. There are alternative approaches that need to be considered. Ecology needs to have a top management discussion to determine the most efficient and effective toxics reductions strategies.
2. The best information is that there are a number of toxic pollutants routinely discharged from POTWs/certain industries at concentrations greater than HHWQC (even at 6.5 gr/day FCR). This trips the “implementation tools” question. Higher FCR will drive HHWQC lower and this will implicate a broader set of HH pollutants. (Will have handouts to document this.)
3. The evidence that HHWQC are exceeded in Washington waterbodies is limited; i.e., now presumably defined by the CWA 303(d) Category 5 list. (Note that the 2008 list has about 380 Category 5 waterbody segment/toxic pollutant listings.) However, over time the analytical methodologies approved for use in 40 CFR 136 will be more capable, and Ecology/NPDES permittees will be expected to analyze for these HH pollutants in ambient waters and NPDES discharges. The result will be a more robust quantification on the presence of HH pollutants in the water environment. (Will provide handout on PCB concentrations in Washington waterbodies.)
4. The effect of more stringent HHWQC (due to an increased FCR) on CWA regulatory programs will extend well into the future. Once more stringent HHWQC are adopted/approved, the opportunity to re-visit and adjust a WQS may not be practical. It seems the only 40 CFR 131 mechanisms may be site-specific WQS and/or Use Attainability Analysis. Both are process and information heavy, and will face severe headwinds from the EPA and public. Ecology may have only one opportunity to get this “right.”
5. The easily identifiable NPDES implementation tools are inadequate. Any plan to rely solely on the issuance of a Variance and/or Compliance Schedules is fundamentally deficient. Either of these approaches put permittees in an untenable position of CWA compliance

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jeopardy. Reliance on these mechanisms is unstable and lacks confidence. The administrative resource demands for Ecology and permittees will grow to be overwhelming. Variances and Compliances Schedules are not available to new discharges. (Will provide the Hanlon memo (EPA, 2007) which articulates the EPA opinion on the use of compliance schedules.)

6. State discretion. The WDOE needs to research and develop a confident assessment on those topic areas where Washington has the legal authority/discretion in deciding on 40 CFR 131 matters. What the CWA requires vs. what EPA Region X wants or thinks is appropriate, may be quite different. Ecology needs to be prepared to be an effective advocate for responsible and practical outcomes.
7. The ability for a new NPDES discharger (or existing NPDES discharger prior to EPA-approved TMDL) to discharge into Category 5 – 303(d) listed waterbody will be substantially threatened given WDOE's response to Pinto Creek decision. As an example, look at WDOE ISWGP Special Condition S6:

“The facility must provide data and other technical information...sufficient to demonstrate: ...discharge of a pollutant for which the water is impaired will meet in-stream water quality criteria at the point of discharge to the waterbody...”

It may not be possible to demonstrate attainment of HHWQS at the point of discharge. Future municipal/commercial/industrial development in Washington is thus threatened by a practical inability to gain (or timely receive) NPDES discharge authority. The vast majority of waterbody segments in Washington will ultimately be listed on Category 5 for one or more HH pollutants. Ecology's ability to produce TMDLs and to gain EPA approval has limitations.

8. There is a difference between earth metals/legacy pollutants and active discharges of other HH pollutants. Implementation approaches could be developed to address this practical reality.
9. Any viable implementation tool must be cognizant of existing and related WAC 173-201A requirements/language. Mechanism(s) will need to be coordinated with regulatory provisions addressing:
 - a. narrative toxics standard (WAC 173-201A-240(1)),
 - b. linkage between HH WQS and demonstration of designated use attainment
 - c. anti-degradation (WAC 173-201A-300),
 - d. reasonable potential analysis; i.e., “cause or contribute to the exceedence of a water quality standard”

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- e. HH pollutant discharges into 303(d) listed HH waterbodies – prior to or with approved TMDL

Will need specific and transparent adjustments in WAC 173-201A to facilitate the need outcomes. In addition, will new guidance in the *Permit Writers Manual* on intentions/interpretation of these and other regulation provisions.

IDEAS ON IMPLEMENTATION TOOLS

1. **Variations per WAC 173-201A-420. What the regulation says:**

- a. Available to “individual facilities or stretches of waters”
- b. Variance is developed for “specific criteria”
- c. “reasonable progress is being made toward meeting the original criteria”
- d. Time horizon – five years, and can be renewed with public/government review
- e. Must be “incorporat(ed) into this chapter and approved by the USEPA”

Scenario for use; i.e., what would it take to yield meaningful benefit

- Consider all state waterbodies to be “stretches of waters”
- Variance is available to all NPDES dischargers into those waterbodies
- Variance is applicable to named earth metals and/or identified legacy pollutants
- “Reasonable progress” is demonstrated by Ecology identification of all statewide toxics use/release reduction regulatory programs, including WAC 173-333 *PBT rule*, WAC 173-307 *P2 Planning*, EPA’s *Columbia River Basin Action Plan Focuses on reducing Toxics, Restoring Basin Health* (February 2011), etc.
- Incorporate implementation language into WAC 173-201A-240
- Review in five years and be prepared to extend and extend

2. **Compliance Schedules per WAC 173-201A-510(4). What the regulation says:**

- a. Available for permittees seeking to comply with water quality-based effluent limits
- b. Existing discharges only. Not available for new NPDES permittees.
- c. Must “ensure final compliance...in the shortest practical time.”
- d. Acceptable reasons include:
 - i. (iv) completion of necessary water quality studies,
 - ii. (v) resolution of pending water quality standards’ issue through rule-making action.
- e. Numeric or nonnumeric effluent limitations to apply in interim
- f. Maximum 10 year compliance schedule

Scenario for use:

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- WDOE embarks on “necessary water quality studies” to assess presence of HH pollutants in state waterbodies, fish tissue, etc. This may take a number of years.
- Ecology makes a “case-by-case” determination that all NPDES permittees will receive a compliance schedule
- Standard set of BMPs adopted into rule (e.g., evaluate raw materials for presence of HH constituents, monitoring discharge for HH pollutant, evaluate BMP approaches for HH pollutant reductions, report, ...)

3. WAC 173-201A-400(15) *Mixing Zone*. What the regulation says:

- a. “The department may establish permit limits and measures of compliance for human health based criteria (based on lifetime exposure levels), independent of this section”

Scenario for use:

- Create unique mixing zone language that creates flexibility for demonstration of water quality standards achievement of HH WQC (allow MZ boundary to be defined based on modeling or in situ measurement to show achievement of HHWQS or to get <MDL/PQL)
- This option is coupled with an obligation to identify HH pollutants in wastewater and to conduct an evaluation to reduce, apply BMPs, etc.

4. WAC 173-201A-400 *Mixing Zones*

Scenario for use:

- All reasonable potential determinations are based on in situ measurement of HH pollutant at down-gradient edge of chronic mixing zone boundary. Mean harmonic flow.
- Add language in -400 and in the Permit Writers Manual to detail the expectation.

5. Intake credit (or net pollutant addition). What the federal regulation says:

- a. “States may, at their discretion, include in their State standards, policies generally affecting their application and implementation, such as mixing zones, low flows and variances. Such policies are subject to EPA review and approval” 40 CFR 131.13
- b. Is there a comparable WAC 173-201A section which

Scenario for use:

- Develop a new WAC 173-201A subsection directing evaluation of NPDES permittee discharge of HH pollutants to be an up-gradient/down-gradient evaluation.

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- Compliance with HH WQC (or reasonable potential analysis) is based on comparison of receiving water samples collected at down-gradient edge of mixing zone vs. up-gradient edge of mixing zone, for the HH pollutant. No distinguishable increase = achievement of WQS. Concentration <MDL/PQL = compliance with the HHWQC.

6. Amend WAC 173-201A-240(6) to read:

- a. "(6) Risk-based criteria for carcinogenic substances shall be selected such that the upper-bound excess cancer risk is ~~less than or equal~~ within the range of one in ten thousand to one in one million"

7. Amend WAC 173-201A-240 Toxic Substances:

- a. HHWQC for mercury will be based on methyl mercury
- b. HHWQC for arsenic will be based on inorganic arsenic

8. Add/perfect the regulatory authority in WAC 173-201A-240 to utilize Water Effects Ratio and the biotic ligand model processes for adjustment of metals criteria.

Scenario for use:

- Other states have figured this out, including Oregon. Should be a priority for Washington as this measure can yield more appropriate and protective WQC and effluent limits consistent with EPA guidelines.
- Be mindful of EPA's "Establishing Site-Specific Aquatic Life Criteria Equal to Natural Background," Davies, (1997) (Will provide)

9. WAC 173-201A-260 *Natural Conditions*. What the regulation says:

- a. "When a water body does not meet its assigned criteria due to natural climatic or landscape attributes, the natural conditions constitute the water quality criteria."

Scenario for use:

- Ecology EAP monitoring allows for assertion in -240 or -260 language that certain earth metals are naturally present above WQC, thus effectively resetting the WQC
- Can declare this state-wide, or for specific waterbodies.
- Be cognizant of Davies (EPA, 1997)

10. WAC 173-201A-260 *Irreversible Human Conditions*. What the regulation says:

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- a. "When a water body does not meet its assigned criteria due to human structural activities that cannot be effectively remedied..., then alternative estimates of the attainable water quality conditions,..., may be used to establish an alternative criteria for the waterbody."

Scenario for use

- Studies indicate that long-range transport/air deposition of mercury, PCB, maybe other HH pollutants, represent a significant input to Washington waterbodies.
- Studies indicate (from prior Chemical Action Plans) that some legacy pollutants exist in the environment at >HHWQC.
- Ecology declares that out-of-state contributions and/or legacy pollutants arise from and represent a "human structural activity that cannot be effectively remedied."
- Consider this factor in establishing alternative HH WQC for urban and low elevation main stem rivers.

11. WAC 173-201A-450 Water Quality Offsets. What the regulation says:

- a. Opportunity for a project proponent to implement or finance the implementation of controls for nonpoint/point sources to reduce the levels of pollution to create assimilative capacity to allow new or expanded discharges.
- b. Offsets must target specific water quality parameters, offsets are described in a technical analysis, secured through binding legal instruments, + much more.

Scenario for use:

- Ecology identifies all state regulatory programs (regulations, permits, TMDLs, etc.) targeting HH toxics reductions
- Ecology declares that these programs accomplish reduced loadings of specific HH pollutants into state waters.
- Ecology declares these HH reductions create capacity state-wide to accommodate existing and new HH discharges from NPDES permittees
- NPDES permittees are granted a discharge allowance of the HH pollutant against the benefits of the accruing offsets
- NPDES permittees are required to evaluate raw material inputs, HH in wastewater discharges, and apply BMPs to reduce, etc.

12. Regulatory determination that a waterbody is impaired from a HH pollutant requires conclusive and substantial ambient waterbody quality or tissue data. In short, change the Category 5 - 303(d) listing criteria. Seek to avoid 100's or 1000's of Category 5 listings.

Scenario for use:

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- Review/revamp WQP Policy 1-11 to require much more than “two samples above criteria in a three year period” or one average/composited tissue sample above the applicable criteria.
- The Policy should require more data; i.e., multiple seasons, multiple years, conclusive evidence that any >HHWQC are not due to a NPDES permittee, etc.
- Ecology is presently reviewing the WQP Policy 1-11 as a precursor to 2012 section 303(d) list developme3nt

13. WAC 173-201A-430 Site-Specific Criteria. What the regulation says:

- a. Must protect “attainable condition of existing and new designated uses for the waterbody”
- b. Action must be consistent with 40 CFR 131 and include public/government process
- c. Must be scientifically justifiable
- d. Requires amendment of WAC 173-201A and EPA approval

Scenario for use:

- Let’s talk about this one

14. Narrative Effluent Limits. What the applicable statutory language and regulation say:

- a. 40 CFR 122.44 allows for narrative effluent limits
- b. RCW 90.48.555 allows for narrative effluent limits.

Scenario for use:

- Create boilerplate language for NPDES permittees which requires long-term characterization of wastewater for the presence of earth metals and/or legacy HH pollutants.
- If HH pollutant in effluent, narrative effluent limit is imposed which requires engineering studies to determine source/origin of pollutant, report to Ecology, and identification of viable measures to reduce HH loading.

15. WAC 173-201A-260 Natural Conditions and other water quality criteria and applications. What the regulation says:

- a. Subsection (2) identifies that narrative criteria apply to all existing and designated uses to ensure “Toxic...concentrations must be below those which” could “adversely affect public health.”

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- b. Subsection (3)(a) directs that “water quality requirements for water bodies” will be established “on a case-specific basis where determined necessary to provide full support for designated and existing uses.”

Scenario for use:

- Ecology determines that the most direct and relevant approach to not “adversely affect public health” and “provid(e) full support for designated and existing uses” will be based on fish tissue analyses and risk assessment approach. (Will provide Lincoln Loehr 1994 memo and State of Minnesota documents).
- Ecology expresses in WAC 173-201A the intention to favor fish tissue/risk assessment, instead of HHWQC based on FCR formula. These are described and developed as “narrative criteria.”
- Ecology EAP collects fish, works with Washington Department of Health, and gives area-specific guidance to fish consumers on acceptable consumption.
- Ecology focuses BMP efforts on waterbodies with contaminated fish, and identifies all state/EPA regulatory programs directed at toxics reduction into the environment.
- NPDES permittees required to assess wastewater for HH pollutants. If HH pollutant in effluent, narrative effluent limit is imposed which requires engineering studies to determine source/origin of pollutant, report to Ecology, and identification of viable measures to reduce HH loading.