

if significant changes occur in the receiving water or in the effluent. The reevaluation may be reduced in scope from the original determination but will include toxicity testing and receiving water analysis at the critical condition.

b. WET testing will be required in the permit.

→ c. A receiving water bioassessment may be required in complex discharge situations.

d. Regardless of the magnitude of the WER determined in a WER study, Ecology will only authorize the highest WER that allows a permittee to fall below the "reasonable potential" threshold.

6.3. Sample-Specific WER approach (EPA pg 13-15)

* The implementation process for this approach is not fully developed in the EPA guidance document and is not applicable to discharge situations.

6.4 Determining WERs for areas in or near plumes (Method 1). (EPA pg 17)

The WER in fresh water should be determined using:

- a. upstream water and C_c ?
- b. simulated downstream water at the acute dilution factor and C_c ?
- c. Simulated downstream at the complete mix ratio when the dilution factor for complete mix is 20 or less. When the dilution factor is greater than 20 for complete mix, use simulated downstream water at the chronic dilution factor.

The WER in salt water should be determined using:

- a. Water from the area of discharge but away from the influence of the discharge
- b. Simulated effluent/receiving water at the chronic dilution ratio.

* 6.5 Design flows for WER(s)

The WER's should be measured three times at the time of critical condition and once at a time of non-critical condition. The critical condition is defined in Washington's Water Quality Standards as when the physical, chemical, and biological characteristics of the receiving water environment interact with the effluent to produce the greatest potential adverse impact on

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aquatic biota ~~and existing~~ or characteristic water uses. The two periods most likely to be the time of critical condition for metals in freshwater whose criteria are hardness dependant are at the time of lowest water hardness (usually wintertime) or at the time of lowest dilution (typically summer low flow).

The Permittee should discuss the time of critical condition (with calculations) in the study plan submittal. If the critical condition is determined to be during low flow the study plan should have a schedule of sampling at or near the critical low flow (typically the time of 7Q10 but no more than 2 times the 7Q10) and at a seasonal high flow. The minimum number of sampling periods is three at time of critical condition (EPA type 1) at a minimum of 5 days apart and one at non-critical condition (EPA type 2).

6.6 Which toxicity tests

For freshwater the species are: Primary - Ceriodapnia sp. or Daphnia magna; Secondary - salmonid (Rainbow Trout or Brook Trout). These species have approved tests for both acute and chronic. Other species or species surrogates may be required if there is a listing for the waterbody under the ESA.

For saltwater the potential species are: Primary - mysid (*Holmesimysis costata* EPA/600/R-95/136, August 1995 or *Mysidopsis bahia* EPA/600/4-91/003); Secondary - topsmelt (*Atherinops affinis* EPA/600/R-95/136) or silverside minnow (*Menidia beryllina* EPA/600/4-91/003). These species have both acute and chronic tests.

6.7 Should an acute WER or a chronic WER or both be determined?

Enough information must be collected to allow Ecology to determine the influence of background and effluent quality on the toxic effect of pollutants. For freshwater, collecting information on the effect of the upstream water, the effluent and receiving water at the simulated acute ratio (if a mixing zone is allowed) and at simulated full mix (or chronic dilution depending on the circumstance) will allow that determination. Additional ratios may be tested at the proponent's option. In many cases the acute criteria and dilution factor are the critical variables in determining reasonable potential. If this is the case, the Permittee may consider a phased project by conducting the acute WER first (since the acute WLA is usually limiting) and then conduct the chronic WER if necessary.

How would
one use
JDF

DCE's position
on stormwater
mixing zones