UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 10

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OFFICE OF

WATER AND WATERSHEDS

June 27, 2014

Paula Wilson
Idaho Department of Environmental Quality
1410 N. Hilton
Boise, Idaho 83706

RE: EPA comments on Idaho Mixing Zone Rule Draft v.2 Sections 060.01 (d), (h), (i), and (j)

Dear Ms. Wilson:

Thank you for providing the opportunity to review and comment on portions of the Idaho Mixing Zone Rule Draft v.2, which the Idaho Department of Environmental Quality (DEQ) issued on June 5, 2014 in advance of its June 12, 2014 negotiated rulemaking meeting. DEQ requested written comments from the public by June 27, 2014 only for the above-referenced sections. We understand that DEQ intends to present the remaining draft rule sections and other revisions on July 10, 2014 for review and comment.

A majority of our comments pertain to additional provisions and specificity for Subsection 060.01.d. (i.e., unreasonable interference) and Subsection 060.01.i. (i.e., varying from restrictions). We believe these further details are important to providing clarity and improving the consistent interpretation of the mixing zone rule provisions. Also, these details will be helpful for the Endangered Species Act (ESA) consultation, which involves an assessment of potential impacts to threatened and endangered species. EPA is required to complete an ESA consultation to support an approval of the mixing zone rule. Without further specificity, either in the regulatory language or in guidance, it will be more challenging for EPA to consult effectively with the Services and meet its ESA obligations.

Our detailed comments are provided in the attachment and include input from both EPA Region 10 and EPA Headquarters. It is important to note that our detailed comments include suggested revisions to DEQ's draft rule language to help facilitate your review and understanding of our comments. We are available if you would like to discuss our comments further, and we look forward to continued work with DEQ on this effort. Please contact me at (208) 378-5771 if you have any questions.

Sincerely,

Cyndi Grafe

Cyndi Grafe
Idaho Mixing Zone Rulemaking Liaison

cc: Barry Burnell, DEQ (e-mail)
Mary Anne Nelson, DEQ (e-mail)

Enclosure:

Attachment A:
Summary of EPA Comments – Idaho Department of Environmental Quality (DEQ) Mixing Zone Draft Sections 060.01 (d), h), (i), and (j) submitted on June 27, 2014

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Summary of EPA Comments – Idaho Department of Environmental Quality (DEQ) Mixing Zone Draft Sections 060.01 (d), h), (i), and (j) submitted June 27, 2014

I. Comment Category: Definition of Zone of Initial Dilution (ZID) 010.117.

#1. EPA recommends adding "shall" in the ZID definition and also clarifying that the ZID is sized to prevent lethality to swimming or drifting organisms. Since size restrictions are addressed in 060.01.h., EPA recommends including ZID sizing limitations in 060.01.h. also. (Note: Please see our comment under Mixing Zone Restrictions 060.01.h. regarding adding the specific ZID sizing limitations in the rule.)

Also, DEQ should clarify that "acute concentration" is synonymous with the magnitude component of acute criteria, i.e., the criterion maximum concentration, rather than a concentration that results in fifty percent lethality as used in Idaho's definition of "acute" at section 010.01.

> 117. **Zone of Initial Dilution (ZID)**. An area within a Department authorized mixing zone where acute criteria may be exceeded. This area shall ~~should~~ be as small as practicable and shall be sized to prevent lethality to swimming or drifting organisms by ensuring ~~assure~~ that drifting organisms are not exposed to acute concentrations for more than one (1) hour more than once in three (3) years. The actual size of the ZID will be determined by the Department for a discharge on a case-by-case basis, taking into consideration mixing zone modeling and associated size recommendations and any other pertinent chemical, physical, and biological data available.

II. Comment Category: Mixing Zones for Point Source Wastewater Discharges 060.01.

EPA recommends that DEQ provide more clarity concerning the demonstration a discharger must make to obtain any mixing zone. We recommend adding the following type of language to 060.01 or adding a new provision under 060.01.

> xx. The Department will determine if a mixing zone is appropriate on a case-by-case basis in accordance with the provisions of this section and will ensure that a mixing zone is no larger than necessary. The Department will also determine that the discharger has utilized economically achievable siting, technological, and managerial options that would minimize the need for a mixing zone before authorization.

III. Comment Category: Unreasonable Interference draft v.2 060.01.d

General Comment:

States are not required to allow mixing zones. If mixing zones are allowed, a State regulatory agency may decide to allow or deny a mixing zone on a case-by-case basis. EPA guidance, *Water Quality Standards Handbook: Second Edition*, states that, in general, mixing zones are limited areas where water quality criteria may be exceeded but even within mixing zones a number of protections are to be maintained.

EPA recommends several revisions to Subsection 060.01.d. to clarify through additional provisions and specificity where mixing zones are not appropriate. It is our understanding that the intent of this subsection is to introduce these provisions as concepts in the rule. Then, DEQ will specify in implementation guidance how the regulated community will effectively demonstrate that the level of water quality necessary to protect beneficial uses (i.e., existing and designated) is still preserved even with the authorization of the mixing zone.

#1. 060.01.d. EPA recommends clarifying that Subsection 060.01.d and all the components to the mixing zone rule address protection of existing and designated beneficial uses. This comment also applies to other subsections of the rule that uses this terminology.

> **d.** Mixing zones shall not cause unreasonable interference with, or danger to, existing and designated beneficial uses. Unreasonable interference with, or danger to, existing and designated beneficial uses includes, but is not limited to, the following:

#.2 060.01.d.i. EPA recommends clarifying the type of interference and including migratory species and drifting organisms.

> i. ~~Interference~~ Blocking or otherwise impeding passage to any life stage of fish or other aquatic life.

#3. 060.01.d.i. EPA recommends separating the concept of interference with spawning, egg incubation or rearing from 060.01.d.i. and clarifying the type of interference.

> xx. Adverse effects on ~~with fish passage,~~ spawning, egg incubation or rearing.

#4. 060.01.d.ii. EPA recommends a lower threshold than "Jeopardy" such as adverse effects.

> ii. Adverse effects ~~Jeopardy~~ to Endangered Species Act listed species, or destruction or adverse modification to critical habitat

#5. 060.01.d.iv. EPA recommends DEQ provide more specificity about when a pollutant would be considered bioaccumulative enough to cause unreasonable interference with, or danger to, aquatic life, human health, and wildlife. For example, 40 CFR 132.2 (*Water Quality Guidance for the Great Lakes System*) includes the following definition for 'Bioaccumulative chemical of concern': "…any chemical that has the potential to cause adverse effects which, upon entering the surface waters, by itself or as its toxic transformation product, accumulates in aquatic organisms by a human health bioaccumulation factor greater than 1000, after considering metabolism and other physicochemical properties that might enhance or inhibit bioaccumulation…".

> iv. ~~In determining whether a mixing zone will cause unreasonable interference with, or danger to, existing aquatic life beneficial uses, the Department shall consider the bioaccumulative nature of the pollutants involved~~ Bioaccumulation or persistence of pollutants in sediments, water or biota to adverse levels.

#6. 060.01.d.v. EPA guidance (EPA 2012) equates acute toxicity with lethality and states that mixing zones should not cause lethality to organisms passing through the mixing zone (EPA 2012, Sections 5.1.1 and 5.1.2). An underlying assumption for authorizing a mixing zone is, if sited properly, allowing a small area of concentrations in excess of acute and chronic criteria, but below concentrations that are acutely toxic, can exist without causing adverse effects to the waterbody as a whole. The EPA suggests revising the language to include separate statements addressing protection against lethality to passing organisms and preventing exceedances of acute criteria outside of the zone of initial dilution, as outlined below.

> v. Lethality to aquatic life passing through the mixing zone. ~~Acute toxicity to aquatic life outside the zone of initial dilution.~~
>
> xx. Exceedances of acute aquatic life criteria outside of the zone of initial dilution.

#7. 060.01.d.xx. EPA recommends introducing the concept of attraction behavior as an unreasonable interference.

> vi. Attraction that results in adverse effects to aquatic life or wildlife.

#8. 060.01. vii. EPA recommends DEQ incorporate a broader provision of unreasonable interference to the contact recreation beneficial use other than just referencing public swimming areas. Presently, the scope seems very narrow and doesn't account for unacceptable interference to other recreational uses (e.g., whitewater rafting, kayaking, etc.).

#9. EPA recommends introducing concepts of narrative "free froms" in rule to ensure a basic level of water quality is preserved. As mentioned earlier, EPA guidance states that, in general, mixing zones are limited areas where water quality criteria may be exceeded, but even within mixing zones, a number of protections are to be maintained.

xx. Materials in concentrations that settle to form objectionable deposits.

xx. Floating debris, oil, scum and other material in concentrations that form nuisances.

xx. Conditions that result in undesirable or nuisance aquatic life.

xx. Production of objectionable color, odor, taste, or turbidity.

IV. Comment Category: Mixing Zone Restrictions draft v2 060.01.h.

#1. EPA recommends incorporating into Subsection 060.01.h., the requirements from Subsection 010.117 that address the method for sizing a ZID to prevent lethality to organisms passing through. EPA recommends DEQ include the requirement from Subsection 010.117 that passing organisms are not to be exposed to one (1) hour average concentrations that exceed the criterion maximum concentration (CMC) more than once in three (3) years. For this method, Section 2.2.2 of EPA's *Technical Support Document for Water Quality-based Toxics Control* (EPA 2011) states that, in many cases, travel time through the acute mixing zone (ZID as defined by DEQ) must be less than roughly 15 minutes if a 1-hour average exposure is not to exceed the CMC (the CMC is the concentration component of acute criteria). Section 4.3.3 (EPA 2011) also describes several other methods for preventing lethality to passing organisms.

#2. EPA recommends clarification that the restrictions described in Subsection 060.0.h. are not the default starting points for the mixing zone size. The wording in Subsection 060.01.i. could imply that if a demonstration is not done to justify either a smaller or larger mixing zone, then a mixing zone at the 25% thresholds presented in Subsection 060.01.h. would likely be authorized.

This language should be revised to clearly state the intent of Subsection 060.01.h. to be that all mixing zones, whether they are within the size restrictions of Subsection 060.01.h. or are proposed to vary from those restrictions according to Subsection 060.01.i., must be evaluated on a case-by-case basis to ensure consistency with the overall provisions of Section 060, including a demonstration that the mixing zone is no larger than necessary.

V. Varying from Mixing Zone Size Limits draft v.2 060.01.i.ii.

As stated in our comments on Draft 1, EPA continues to recommend that DEQ provide more clarity concerning the authorization of mixing zones larger than the size limits in 060.01.h. Even though mixing zones are sized on a case-by-case basis and the limits in 060.01.h are maximum rather than default sizes, EPA believes such limits are only meaningful if the circumstances under which a larger mixing zone may be considered, and ultimately authorized by DEQ, are clear in the rule language.

EPA understands DEQ's desire to maintain the flexibility to authorize larger mixing zones when necessary. However, other factors being equal, since a mixing zone larger than the size limits in 060.01.h. would have a larger impact on water quality than a mixing zone that meets such limits, larger mixing zones should be subject to additional scrutiny. The recommendations below are meant to be consistent with the recommended text for the new provision we recommended in II. Comment Category: Mixing Zones for Point Source Wastewater Discharges 060.01. To these ends, EPA recommends adding the underlined language to Subsection 060.01.i.ii:

> ii. A larger mixing zone is needed by the discharger and does not cause an unreasonable interference with, or danger to~~, existing~~ beneficial uses as described in Subsection 060.01.d. and the mixing zone meets the other requirements set forth in Section 060. The Department's assessment of a discharger's need for a mixing zone larger than the limits in Subsection 060.01.h will, at a minimum, address the following limitations:
>
> 1. The Department shall not authorize a larger mixing zone where it determines, based on the observed or expected performance of the treatment system, that the discharger can consistently meet water quality criteria at the edge of a mixing zone which meets the limits in Subsection 060.01.h.
> 2. The department shall not authorize a larger mixing zone where it determines a discharger's inability to meet water quality criteria at the edge of a mixing zone which meets the limits in Subsection 060.01.h results from improper operation or maintenance or inadequate technical, financial, or managerial capacity.
> 3. The department shall not authorize a larger mixing zone where it determines there are feasible alternatives to the proposed or existing design and location of the outfall that would reduce the size of the mixing zone needed by the discharger.
> 4. Where the department has previously authorized a larger mixing zone for a discharger, the department shall reassess the discharger's need for a larger mixing zone, considering any subsequent changes in a discharger's capability to meet water quality criteria at the edge of a mixing zone which meets the limits in Subsection 060.01.h.

VI. Comment Category: Outfall Design draft v.2 060.01.j.

#1. 060.01.j. EPA supports DEQ including a provision about outfall design. EPA recommends in guidance that state mixing zone policies ensure the best practicable engineering design is used by dischargers when discharging into a mixing zone and that the location of an existing or proposed outfall avoid significant adverse impacts to aquatic resources and water quality (EPA 2012, Section 5.1.1). EPA is concerned that the draft provision is only a recommendation from DEQ rather than a requirement. Because this language will be in rule, EPA recommends that the provisions be mandatory.

> j. The Department ~~recommends~~ shall ensure that the best practicable engineering design is used by the discharger when designing an outfall and shall consider the following elements ~~when designing an outfall~~ prior to authorizing a mixing zone:

#2. 060.01.j.i. EPA suggests the revision below to improve clarity.

i. ~~Encourage r~~Rapid mixing is promoted to the extent possible ~~This may be done~~ through careful location and design of the outfall; and

#3. 060.01.j.ii. EPA is concerned that shore-hugging plumes would be allowed in some situations. EPA guidance recommends that shore-hugging plumes be avoided in all waterbodies, not just in specific circumstances.

Often, shoreline plumes do not mix as well with receiving water, and therefore, do not dilute as well, as plumes located away from the shoreline. Therefore, shore-hugging plumes could result in pockets of poorly mixed effluent along the shoreline, potentially causing adverse impacts to aquatic life and/or human health. Furthermore, the potential impacts of shore-hugging plumes to aquatic life are not limited to migrating fish, wildlife can be impacted as well. Shore-hugging plumes can present cases where a mixing zone may need to be very restrictive or prohibited.

Citations:

U.S. Environmental Protection Agency. (2012) Water Quality Standards Handbook: Second Edition. EPA-823-B-12-002, March 2012. www.epa.gov/wqshandbook

U.S. Environmental Protection Agency. (2011) 40 CFR 132.2 Water Quality Guidance for the Great Lakes System. http://www.gpo.gov

U.S. Environmental Protection Agency. (1991) Technical Support Document for Water Quality-based Toxics Control. EPA/505/2-90-001, March 1991. http://water.epa.gov/scitech/swguidance/standards/handbook/upload/2002_10_25_npdes_pubs_owm0264.pdf