



**UNITED STATES ENVIRONMENTAL PROTECTION
AGENCY
REGION 10**

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**WATER
DIVISION**

DEC 16 2019

Dr. Mary Anne Nelson
Water Quality Division Administrator
Idaho Department of Environmental Quality
1410 North Hilton
Boise, Idaho 83706-1255

Re: The EPA Review and Clean Water Act Action on Idaho's New and Revised Water Quality Standards, Mixing Zone Policy, Idaho Rule Docket 58-0102-1401

Dear Dr. Nelson:

The U.S. Environmental Protection Agency has completed the review of Idaho's new and revised water quality standards that address the mixing zone policy (Idaho rule docket 58-0102-1401). The Idaho Department of Environmental Quality adopted these water quality standards revisions into the State's regulations at IDAPA 58.01.02.060.01, 060.02, 010.11, 010.54, 010.55, 010.98, and 010.117. According to the DEQ public notice (April 2, 2014), the purpose of the rule revision was to accurately reflect current policies, ensure consistency with other updated standards, clearly articulate mixing zone requirements, and incorporate more current procedures and tools to better evaluate mixing zones.

Pursuant to section 303(c)(3) of the Clean Water Act, 33 U.S.C. § 1313(c)(3), and 40 CFR Part 131, the EPA approves Idaho's new and revised water quality standards addressing the mixing zone policy. Details of the submitted water quality standards and the EPA's action are outlined below and in the enclosed Technical Support Document.

The EPA's action applies only to waterbodies in the State of Idaho and does not apply to waters that are within Indian Country as defined in 18 U.S.C. § 1151. In addition, nothing in this action shall constitute an approval or disapproval of a water quality standard that applies to waters within Indian Country. The EPA, or authorized Indian Tribes, as appropriate, will retain responsibilities for water quality standards for waters within Indian Country.

Background

By letter dated October 26, 2016, the DEQ submitted new and revised water quality standards at IDAPA 58.01.02.060.01, 060.02, 010.11, 010.54, 010.55, 010.98, and 010.117 of Idaho's Administrative Code. These new and revised water quality standards were adopted and finalized by the 2015 Idaho Legislature, became effective under Idaho state law on April 11, 2015, and were certified by the Idaho Attorney General on May 4, 2015, as being duly adopted pursuant to state law. Idaho's process for adopting the submitted revisions, including the opportunity for public comment, is described in DEQ's submittal letter and its enclosures.

The water quality standards revisions submitted to the EPA for review and action are identified in an enclosure to DEQ's October 26, 2016, submittal letter, and include:

- Repeal and replacement of the Idaho mixing zone policy at IDAPA 58.01.02.060
- Addition of the new "Bioaccumulative Pollutants" definition at IDAPA 58.01.02.010.11
- Addition of the new "Thermal Shock" definition at IDAPA 58.01.02.010.98
- Deletion of the "LC50" definition at IDAPA 58.01.02 – 010.54
- Deletion of the "Outstanding Resource Waters for Mixing Zones" definition at IDAPA 58.01.02.010.55
- Revision of the "Zone of Initial Dilution" definition at IDAPA 58.01.02.010.117

Idaho's new and revised mixing zone policy at IDAPA 58.01.02.060 included reorganization, reformatting, wording changes, and the addition and deletion of provisions. Idaho's revisions resulted in the deletion of the prior mixing zone policy and the replacement of the policy with new provisions. The scope of these changes was such that even language that remained essentially the same or similar to those in the mixing zone rule prior to the 2016 revisions, was presented differently in the revised rule, for example with a different or clarified scope, such that the EPA was unable to clearly parse the language. Therefore, the EPA is acting on the entirety of the mixing zone rule at IDAPA 58.01.02.060 as being new or revised.

The mixing zone policy at IDAPA 58.01.02.060 contains two sections, IDAPA 58.01.02.060.01 and 060.02. The overarching mixing zone provision at IDAPA 58.01.02.60.01 establishes the authority for DEQ to authorize mixing zones on a case-by-case basis. IDAPA 58.01.02.060.01 includes additional provisions at IDAPA 58.01.02.060.01.a – j. These provisions address mixing zone policies regarding impaired waters (060.01.a); chronic/acute water quality (060.01.b); mixing zone size (060.01.c); unreasonable interference (060.01.d); nested, multiple, and adjacent mixing zones (060.01.e-g); mixing zone restriction and discretion (060.01.h-i); and outfall zone 060.01.j.

IDAPA 58.01.02.060.02 provides that DEQ may allow limited dilution for certain discharges (e.g., some 404 dredge and fill activities, stormwater, and nonpoint source discharges) by establishing points for monitoring compliance with ambient water quality criteria when the nature of the discharge precludes a mixing zone analysis.

The EPA's Approval Action

In accordance with the EPA's authority under section 303(c)(3) of the CWA and 40 CFR Part 131, the EPA approves the repeal and replacement of the Idaho mixing zone policy at IDAPA 58.01.02.060.

Regarding DEQ's revisions to IDAPA 58.01.02.010, the EPA approves the new definitions regarding bioaccumulative pollutants (010.11) and thermal shock (010.98). Further, the EPA approves the revision to the zone of initial dilution definition (010.117) to reflect concepts outlined in IDAPA 58.01.02.060.01.c and 060.01.d., that mixing zones shall be no larger than necessary and sized to prevent unreasonable interference, or danger to, aquatic life. Lastly, the EPA approves deleting the definitions for LC50 (010.54) and Outstanding Resource Waters for Mixing Zones (010.55).

The EPA appreciates DEQ's ongoing work to update Idaho's water quality standards and supports DEQ's efforts to provide additional clarity to the mixing zone policy. We also appreciate the

collaboration and participation by you and your staff in the Endangered Species Act consultation process for this action. If you have any questions or comments, please contact me or Cyndi Grafe, the Water Quality Standards lead for this project, at (208) 378-5771.

Sincerely,

A handwritten signature in blue ink, appearing to read "Dan D. Opalski".

Daniel D. Opalski
Director

Enclosure

cc: Jason Pappani, Surface Water Bureau Chief, DEQ

Technical Support Document

The EPA's Action on Idaho's New and Revised Mixing Zone Policy Rule

Submitted October 26, 2016

December 16, 2019

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Technical Support Document

The EPA’s Action on Idaho’s New and Revised Mixing Zone Policy Rule

Submitted October 26, 2016

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I. Introduction

This document provides the basis for the U.S. Environmental Protection Agency's (EPA) action under section 303(c) of the Clean Water Act (CWA), 33 U.S.C. § 1313(c), and the federal water quality standards regulations at 40 CFR Part 131, on certain new and revised water quality standards (WQS) regarding mixing zones submitted to the EPA by the Idaho Department of Environmental Quality (DEQ).¹ The new and revised WQS set forth in Idaho's Administrative Rules (IDAPA 58.01.02) were duly adopted pursuant to state law and became effective on April 11, 2015. The EPA received DEQ's submittal of the new and revised WQS on October 26, 2016.

Idaho's new, deleted, and revised mixing zone policy provisions set forth in IDAPA 58.01.02 and addressed in today's decision include:

- Definitions
 - 010.11 Bioaccumulative Pollutants (new)
 - 010.54 LC₅₀ (deleted)
 - 010.55 Outstanding Resource Waters for Mixing Zones (deleted)
 - 010.98 Thermal Shock (new)
 - 010.117 Zone of Initial Dilution (ZID) (revised)
- Mixing Zone Policy
 - 060.01 Mixing Zones for Point Source Discharges (new)
 - 060.01.a. Impaired Waters
 - 060.01.b. Chronic/Acute Water Quality
 - 060.01.c. Mixing Zone Size
 - 060.01.d. Unreasonable Interference
 - 060.01.e. Multiple Nested Mixing Zones
 - 060.01.f. Multiple Mixing Zones
 - 060.01.g. Mixing Zone Overlap
 - 060.01.h. Mixing Zone Restrictions
 - 060.01.i. Restriction Discretion
 - 060.01.j. Outfall Design Criteria
 - 060.02. Points of Compliance as Alternatives to Mixing Zones (new)

This document is organized as follows:

- Part II of this document provides additional background information about CWA requirements and Idaho's October 26, 2016 WQS submittal.
- Part III of this document provides the basis for this action under CWA section 303(c) and the EPA's implementing regulations at 40 CFR Part 131.

¹ Letter dated October 26, 2016 from Barry Burnell, Administrator Water Quality Division, Idaho Department of Environmental Quality, to Dan Opalski, Director, Water Division, Region 10, U.S. Environmental Protection Agency, RE: Submission of revised water quality standards for approval: Mixing Zone Policy, Idaho rule docket 58-0102-1401.

II. Background

A. Clean Water Act Requirements for Water Quality Standards

The federal water quality standards regulation at 40 CFR Part 131 requires that states and authorized tribes adopt designated uses for their waters, water quality criteria to protect those designated uses, and an antidegradation policy. States and authorized tribes may, at their discretion, also adopt general policies affecting application and implementation of water quality standards, such as mixing zone policies (40 CFR 131.13). Mixing zone policies are legally binding state policies that are adopted into a state's water quality standards and describe the general characteristics of and requirements associated with mixing zones without taking into account site-specific information. Like other water quality standards, such policies adopted in regulation or statute on or after May 30, 2000 require the EPA's approval before they become applicable water quality standards for purposes of implementing the CWA (40 CFR 131.21(c)).

A regulatory mixing zone is an area where initial mixing and dilution of a discharge with its receiving water occurs and pollutant concentrations are allowed to exceed certain applicable water quality criteria. The allowance for regulatory mixing zones is based on the premise that certain water quality criteria may be exceeded under limited circumstances while still protecting designated uses in the water body as a whole.²

The federal water quality standards regulation does not specify requirements for mixing zones; however, because mixing zone policies affect the application of water quality criteria, such policies are to be based on sound scientific rationale and contain sufficient parameters to protect designated uses consistent with 40 CFR 131.11(a)(1). Authorization of mixing zones must also protect existing uses in the waterbody as a whole consistent with 40 CFR 131.12(a)(1).³

Guidance provided by the EPA presents a framework for implementing mixing zones so that they are in harmony with uses in the waterbody and do not impede progress towards the CWA objective to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. The EPA's guidance addresses factors such as mixing zone location, size, and shape; in-zone water quality; and discharge outfall design, with an emphasis on preventing lethality to organisms passing through a mixing zone. This is to ensure that mixing zones do not cause significant human health risks and do not endanger critical areas (e.g., breeding or spawning grounds, habitat for threatened or endangered species, areas with sensitive biota, shellfish beds, fisheries, drinking water intakes and sources, or recreational areas).

² Chapter 5, p. 4: General Policies, Water Quality Standards Handbook. U.S. Environmental Protection Agency, Washington, D.C. 2014 (hereinafter "EPA WQS Handbook"). Available at <https://www.epa.gov/wqs-tech/water-quality-standards-handbook> ("If the total area affected by elevated concentrations within all mixing zones combined is small compared to the total area of the waterbody in which the mixing zones are located, then mixing zones are likely to have little effect on the designated use of the waterbody as a whole, provided that they do not impinge on unique or critical habitats...")

³ Questions and Answers on Antidegradation, EPA, August 1985, Question 11, p. 5 ("Existing uses must be maintained in all parts of the water body segment in question other than in restricted mixing zones.")

The EPA's guidance for ensuring that mixing zones are consistent with the CWA can be found in the following documents:

- EPA's Water Quality Standards Handbook, Chapter 5 (updated as of September 2014) (<https://www.epa.gov/sites/production/files/2014-09/documents/handbook-chapter5.pdf>)
- EPA's 1998 Advance Notice of Proposed Rulemaking, 63 FR 36742, 36787-94 (<https://www.gpo.gov/fdsys/pkg/FR-1998-07-07/pdf/98-17513.pdf>), and
- EPA's 1991 Technical Support Document for Water Quality-based Toxics Control, sections 2.2.2 and 4 <https://www3.epa.gov/npdes/pubs/owm0264.pdf>)

B. Overview of Idaho's October 26, 2016 WQS Submission

Idaho originally adopted its mixing zone policy in 1991. In April 2014, DEQ initiated negotiated rulemaking to revise the mixing zone provisions. According to the public notice (April 2, 2014), the purpose of the rule revision was to accurately reflect the most current policies, ensure consistency with other updated standards, clearly articulate mixing zone requirements, and incorporate more current procedures and tools to better evaluate mixing zones.

The first negotiated rulemaking meeting was held on May 1, 2014, with two additional meetings held on June 12 and July 10, 2014. Four preliminary drafts of the rule were prepared, including the preliminary draft presented at the first meeting. Each draft rule was subject to a public comment period in addition to the negotiated rulemaking meetings. A fifth draft was published as the proposed rule in the September 3, 2014 Administrative Bulletin which commenced a formal 30-day public comment period.

In response to public comment, the proposed rule was revised and then presented to the Idaho Board of Environmental Quality on November 19, 2014 and adopted as a pending rule without further change. The pending rule was noticed in the December 3, 2014 Idaho Administrative Bulletin and became final and effective on April 11, 2015 after the conclusion of the 2015 Idaho Legislature.

In revising its mixing zone regulation, DEQ repealed and replaced IDAPA 58.01.02.060.01 and 060.02, revised the "Zone of Initial Dilution" definition (IDAPA 58.01.02.010.117), added two new definitions, "Bioaccumulative Pollutants" and "Thermal Shock" (IDAPA 58.01.02 – 010.11 and 010.98, respectively), and deleted two definitions "LC50" and "Outstanding Resource Waters for Mixing Zones" (IDAPA 58.01.02 – 010.54 and 010.55, respectively).

DEQ has an online record of the rulemaking process that includes all the rule drafts and comments received, presentations and materials distributed. The rulemaking record can all be accessed at: <https://www.deq.idaho.gov/58-0102-1401>. In addition to the documents itemized below, DEQ's submittal included by reference all materials that are posted at this URL.

The rule submittal package includes:

- A cover letter briefly describing the rulemaking, its justification, and the contents of the package supporting the rule being submitted for approval, [file: 1) 58-0102-1401 EPA submittal letter.pdf];
- April 2, 2014 Notice of Negotiated Rulemaking, [file: 2) 58-0102-1401_Notice of Negotiated Rulemaking_04-14.pdf];
- September 3, 2014 Notice of Proposed Rule announcing opening of 30-day public comment period on proposed rule, [file: 3) 58-0102-1401-Notice of Proposed Rule_08-14.pdf];
- Summary of negotiated rulemaking prepared for DEQ's Board, [file: 4) 58-0102-1401 Summary of negotiated rulemaking .pdf];
- Summary of public comment and DEQ's response, including copies of meeting sign-in sheets, [file: 5) 58-0102-1401 Public comment summary-1114.pdf];
- Mixing Zone Rule Crosswalk, a word document that helps identify previous rule language that has been retained in the revised rule but relocated and/or modified; [file: 6) 58-0102-1401 Mixing Zone Rule Crosswalk.pdf];
- December 3, 2014 Notice of Pending Rule - Announcing adoption by the DEQ Board, [file: 7) 58-0102-1401 Notice of Pending Rule_12-14.pdf];
- Notice of final rules from May 6, 2015 Administrative Bulletin, docket 58-0102-1401 is highlighted on page 28, [file: 8) Notice of final rules, May 6, 2015 Admin Bulletin.pdf];
- An Attorney General's certification that the rules were adopted according to state law, [file: 9) AG's Certification letter 58-0102-1401.pdf];

C. Overview of Endangered Species Act Consultation and Coordination with Tribes

On February 28, 2019, the EPA transmitted the Idaho Mixing Zone Biological Evaluation to the National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) requesting initiation of formal consultation under section 7 of the Endangered Species Act.⁴ On October 10, 2019, NMFS provided a biological opinion concluding that the EPA's proposed approval of new and revised Idaho mixing zone rules was not likely to jeopardize the continued existence of the Snake River spring/summer Chinook salmon, Snake River fall Chinook salmon, Snake River sockeye salmon, and Snake River Basin steelhead. In addition, NMFS concluded the proposed action was not likely to result in adverse modification of designated critical habitat for these anadromous fish species. NMFS also concurred with the EPA's determination that the proposed action was not likely to adversely affect Southern Resident killer whale.⁵ On

⁴ Letter dated February 28, 2019 from Hanh Shaw, Manager, Water Quality Standards Unit, to Bill Lind, Branch Chief, Southern Snake Branch, NOAA Fisheries West Coast Region, RE: The USEPA request to initiate formal ESA consultation for the Idaho Water Quality Standards – 2015 Revisions to the Mixing Zone Regulations. Letter dated February 28, 2019 from Hanh Shaw, Manager, Water Quality Standards Unit, to Christy Johnson-Hughes, Assistant State Supervisor, IFWO-Spokane Field Office, RE: The USEPA request to initiate formal ESA consultation for the Idaho Water Quality Standards – 2015 Revisions to the Mixing Zone Regulations.

⁵ Endangered Species Act Section 7(a)(2) Biological Opinion, Concurrence Letter, and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response for the Idaho Water Quality Standards Mixing Zone Rules. NMFS No: WCRO-2019-00092. October 10, 2019.

November 8, 2019, the USFWS concluded that the proposed action may affect, but was not likely to adversely affect bull trout, Kootenai River white sturgeon, Snake River physa snail, Banbury Springs lanx, Bruneau Hot springsnail, Bliss Rapids snail, bull trout critical habitat, and Kootenai River white sturgeon critical habitat.⁶

The EPA offered government-to-government consultation to the tribal governments in Idaho on March 27, 2019, and conducted coordination sessions on April 30, 2019, and May 8, 2019, to share information and answer questions regarding the EPA's proposed action on the new and revised mixing zone policy. The EPA provided additional information at the request of the tribal representatives following the coordination sessions. There were no requests from tribes for formal government-to-government consultation.

D. Scope of The EPA's Action

Idaho's new and revised mixing zone policy at IDAPA 58.01.02.060 included reorganization, reformatting, wording changes, and the addition and deletion of various provisions. Idaho's revisions resulted in the deletion of the prior mixing zone policy and the replacement of the deleted policy with new provisions. The scope of these changes is such that even language that remained essentially the same or similar to those in the mixing zone rule prior to the 2016 revisions, is presented differently in the revised rule, for example with a different or clarified scope, such that the EPA is unable to clearly parse the language. Therefore, the EPA is acting on the entirety of the mixing zone rule at IDAPA 58.01.02.060 as being new or revised.

In limited cases where the EPA determined that it was straight forward to explain why the changes did not revise the prior mixing zone policy, the EPA acted on the changes as non-substantive revisions and did not review the provision's underlying meaning. The EPA's action of the non-substantive changes to previously approved water quality standards is to ensure public transparency as to which provisions are applicable for purposes of the CWA in accordance with 40 CFR 131.21(c). The scope of the EPA's action regarding such provisions extends only as far as the actual non-substantive changes themselves. The EPA's action on the non-substantive changes does not constitute an action on the underlying previously approved water quality standards because they are not new or revised.⁷

The EPA is only acting on the new or revised water quality standards adopted into regulation by DEQ and identified in DEQ's October 26, 2016 submittal. The EPA is not acting on the previously existing sections of the Idaho Administrative Code which were not part of DEQ's October 26, 2016 submittal, but are referenced in the new IDAPA 58.01.02. In such cases, the EPA's action does not extend to the content of the referenced Idaho Administrative Code sections.⁸

⁶ Letter correspondence from Christopher Swanson, Acting State Supervisor, USFWS, to Hanh Shaw, Manager – Water Quality Standards Unit. FWS/R1/ES/IFWO/2019-F-0868. November 8, 2019.

⁷ *What is a New or Revised Water Quality Standard under 303(c)(3) Frequently Asked Questions*, U.S. Environmental Protection Agency, EPA Pub. No. 820F12017 (Oct. 2012), p. 4. Available at <https://www.epa.gov/sites/production/files/2014-11/documents/cwa303faq.pdf>

⁸ *Id.*

After its October 26, 2016 submittal, DEQ finalized the mixing zone implementation guidance.⁹ The EPA relied on the implementation guidance, where appropriate, to inform its review and action on Idaho’s revised mixing zone rule. The EPA is not, however, taking a CWA section 303(c) action on Idaho’s mixing zone implementation guidance because it is not binding in regulation or statute.¹⁰

The EPA’s action applies only to waterbodies in the State of Idaho and does not apply to waters that are within Indian Country as defined in 18 U.S.C. § 1151. In addition, nothing in this action shall constitute an approval or disapproval of a water quality standard that applies to waters within Indian Country. The EPA, or authorized Indian Tribes, as appropriate, will retain responsibilities for water quality standards for waters within Indian Country.

III. The EPA Action on Idaho’s New and Revised Water Quality Standards

The following section first provides the new and revised mixing zone rules in their entirety and then summarizes the EPA’s action and rationale for each provision separately. The strikeout text represents the original language and the underlined text indicates the revised language that is the subject of the EPA’s action.

A. New and Revised Mixing Zone Policy Rule

1. IDAPA 58.01.02.100.10 New and Revised Definitions

11. Bioaccumulative Pollutants. A compound with a bioaccumulation factor of greater than one thousand (1,000) or a bioconcentration factor of greater than *onethousand (1,000)*.

~~54. — **LC-50.** The toxicant concentration killing fifty percent (50%) of exposed organisms at a specific time of observation (e.g., ninety-six (96) hours).~~

101. Thermal Shock. A rapid temperature change that causes aquatic life to become disoriented or more susceptible to predation or disease.

~~55. — **Outstanding Resource Water Mixing Zone.** An area or volume of an ORW where pollutants are allowed to mix with the ORW receiving water at a location distinct from the sampling point where compliance with ORW quality standards is measured. An ORW mixing zone will be downstream from the discharge of a tributary or a segment immediately upstream which contains man caused pollutants as a result of nonpoint source activities occurring on that tributary or segment. As a result of the discharge, the mixing zone may not meet all water quality standards applicable to the ORW, but shall still be protected for existing beneficial uses. The Department, after consideration of input from interested parties, will determine the size, configuration and location of mixing zones which are necessary to meet the requirements of this chapter.~~

99. **Zone of Initial Dilution (ZID).** An area within a Department authorized mixing zone where acute criteria may be exceeded. This area ~~should be as small as practicable~~ shall be no larger than

⁹ Idaho Mixing Zone Implementation Guidance. Idaho Department of Environmental Quality (Dec. 2016) (hereinafter “Idaho Mixing Zone Implementation Guidance”)

¹⁰ *What is a New or Revised Water Quality Standard under 303(c)(3) Frequently Asked Questions*, pp. 2-3

necessary and *assure* shall be sized to prevent lethality to swimming or drifting organisms by ensuring that *drifting* organisms are not exposed to *acute* concentrations exceeding acute criteria 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.

2. IDAPA 58.01.02.100.060 New and Revised Mixing Zone Policy

60. MIXING ZONE POLICY.

~~01. — **Mixing Zones for Point Source Wastewater Discharges.** After a biological, chemical, and physical appraisal of the receiving water and the proposed discharge and after consultation with the person(s) responsible for the wastewater discharge, the Department will determine the applicability of a mixing zone and, if applicable, its size, configuration, and location. In defining a mixing zone, the Department will consider the following principles:~~

~~a. — The mixing zone may receive wastewater through a submerged pipe, conduit or diffuser.~~

~~b. — The mixing zone is to be located so it does not cause unreasonable interference with or danger to existing beneficial uses.~~

~~c. — When two (2) or more individual mixing zones are needed for a single activity, the sum of the areas and volumes of the several mixing zones is not to exceed the area and volume which would be allowed for a single zone;~~

~~d. — Multiple mixing zones can be established for a single discharge, each being specific for one (1) or more pollutants contained within the discharged wastewater;~~

~~e. — Mixing zones in flowing receiving waters are to be limited to the following:~~

~~i. — The cumulative width of adjacent mixing zones when measured across the receiving water is not to exceed fifty percent (50%) of the total width of the receiving water at that point;~~

~~ii. — The width of a mixing zone is not to exceed twenty five percent (25%) of the stream width or three hundred (300) meters plus the horizontal length of the diffuser as measured perpendicularly to the stream flow, whichever is less;~~

~~iii. — The mixing zone is to be no closer to the ten (10) year, seven (7) day low flow shoreline than fifteen percent (15%) of the stream width;~~

~~iv. — The mixing zone is not to include more than twenty five percent (25%) of the volume of the stream flow;~~

~~f. — Mixing zones in reservoirs and lakes are to be limited to the following:~~

~~i. — The total horizontal area allocated to mixing zones is not to exceed ten percent (10%) of the surface area of the lake;~~

~~ii. — Adjacent mixing zones are to be no closer than the greatest horizontal dimension of any of the individual zones;~~

~~g. — The water quality within a mixing zone may exceed chronic water quality criteria so long as chronic water quality criteria are met at the boundary of any approved mixing zone. Acute water~~

quality criteria may be exceeded within a zone of initial dilution inside the mixing zone if approved by the Department.

h. Concentrations of hazardous materials within the mixing zone must not exceed the ninety six (96) hour LC50 for biota significant to the receiving water's aquatic community.

~~02. **Mixing Zones for Outstanding Resource Waters.** An ORW mixing zone will be downstream from the discharge of a tributary or segment immediately upstream which contains man caused pollutants as a result of nonpoint source activities occurring on that tributary or segment. As a result of the discharge, the mixing zone may not meet all water quality standards applicable to the ORW, but shall still be protected for existing beneficial uses. The Department, after consideration of input from interested parties, will determine the size, configuration and location of mixing zones which are necessary to meet the requirements of these rules.~~

01. **Mixing Zones for Point Source Discharges.** Whether a mixing zone is authorized, and its size, configuration and location, is determined by the Department on a case-by-case basis. This determination is made in accordance with the provisions of Section 060 at the time a permit is issued, renewed, or materially modified and is in effect as long as the permit remains in effect. Such an authorization is required before a mixing zone can be used to determine the need for, or level of, effluent limits for a particular pollutant.

a. Mixing zones shall not be authorized for a given pollutant when the receiving water does not meet water quality criteria for that pollutant; provided, however, the Department may authorize a mixing zone when the permitted discharge is consistent with an approved TMDL allocation or other applicable plans or analyses (such as 4b implementation plans, watershed loading analyses, or facility-specific water quality pollutant management plans) that demonstrate that there is available assimilative capacity and authorizing a mixing zone is consistent with achieving compliance with water quality standards in the receiving water.

b. Water quality within an authorized mixing zone is allowed to exceed chronic water quality criteria for those parameters approved by the Department. If approved by the Department, acute water quality criteria for one (1) or more parameters may be exceeded within the zone of initial dilution inside the mixing zone. Narrative criteria in Subsections 200.03 and 200.05 apply within the mixing zone. All water quality criteria must be met at the boundary of any mixing zone under its design conditions.

c. The size of mixing zone(s) and the concentration of pollutant(s) present shall be evaluated based on the permitted design flow. The Department shall not authorize a mixing zone that is determined to be larger than is necessary considering siting, technological, and managerial options available to the discharger.

d. Mixing zones, individually or in combination with other mixing zones, shall not cause unreasonable interference with, or danger to, beneficial uses. Unreasonable interference with, or danger to, beneficial uses includes, but is not limited to, the following: ()

i. Impairment to the integrity of the aquatic community, including interfering with successful spawning, egg incubation, rearing, or passage of aquatic life. ()

ii. Heat in the discharge that causes thermal shock, lethality, or loss of cold water refugia.

iii. Bioaccumulation of pollutants (as defined in Section 010) resulting in tissue levels in aquatic organisms that exceed levels protective of human health or aquatic life. ()

iv. Lethality to aquatic life passing through the mixing zone. ()

v. Concentrations of pollutants that exceed Maximum Contaminant Levels at drinking water intake structures. ()

vi. Conditions which impede or prohibit recreation in or on the water body. Mixing zones shall not be authorized for E. coli. ()

e. Multiple nested mixing zones may be established for a single point of discharge, each being specific for one (1) or more pollutants contained within the discharge. ()

f. Multiple mixing zones may be established for a single activity with multiple points of discharge. When these individual mixing zones overlap or merge, their combined area and volume shall not exceed that which would be allowed if there was a single point of discharge. When these individual mixing zones do not overlap or merge, they may be authorized as individual mixing zones. ()

g. Adjacent mixing zones of independent activities shall not overlap. ()

h. Mixing zones shall meet the following restrictions; provided, however, that the Department may authorize mixing zones that vary from the restrictions under the circumstances set forth in Subsection 060.01.i. below:

i. For flowing waters: ()

(1) The width of a mixing zone is not to exceed twenty-five percent (25%) of the stream width; and

(2) The mixing zone shall not include more than twenty-five percent (25%) of the low flow design discharge conditions as set forth in Subsection 210.03.b. of these rules. ()

ii. For all new discharges to nonflowing waters authorized after July 1, 2015: ()

(1) The size of the mixing zone is not to exceed five percent (5%) of the total open surface area of the water body or one hundred (100) meters from the point of discharge, whichever is smaller;

(2) Shore-hugging plumes are not allowed; and ()

(3) Diffusers shall be used. ()

iii. For all existing discharges to nonflowing waters authorized prior to July 1, 2015, the total horizontal area allocated to the mixing zone is not to exceed ten percent (10%) of the surface area of the lake. ()

iv. Lakes and reservoirs with a mean detention time of fifteen (15) days or greater shall be considered nonflowing waters for this purpose. Detention time will be calculated as the mean annual storage volume divided by the mean annual flow rate out of the reservoir for the sametime period. ()

i. The Department may authorize a mixing zone that varies from the limits in Subsection 060.01.h. if it is established that: ()

i. A smaller mixing zone is needed to avoid an unreasonable interference with, or danger to, beneficial uses as described in Subsection 060.01.d., and the mixing zone meets the other requirements set forth in Section 060; or ()

ii. A larger mixing zone is needed by the discharger and does not cause an unreasonable interference with, or danger to, beneficial uses as described in Subsection 060.01.d., and the mixing zone meets the other requirements set forth in Section 060. The discharger shall provide to the Department an analysis that demonstrates a larger mixing zone is needed given siting, technological, and managerial options. ()

j. The following elements shall be considered when designing an outfall: ()

i. Encourage rapid mixing to the extent possible. This may be done through careful

location and design of the outfall; and

()

ii. Avoid shore-hugging plumes in those water bodies where the littoral zone is a major supply of food and cover for migrating fish and other aquatic life or where recreational activities are impacted by the plume. ()

02. **Points of Compliance as Alternatives to Mixing Zones.** Specification of mixing zones for some 404 dredge and fill activities, stormwater, and nonpoint source discharges may not be practicable due to the generally intermittent and diffuse nature of these discharges. Rather, the Department may allow limited dilution of the discharge by establishing points for monitoring compliance with ambient water quality criteria. These alternatives to a mixing zone are still subject to requirements outlined in Subsections 060.01.a., 060.01.d., 200.03, and 200.05.

B. New Mixing Zones for Point Source Discharges Policy at IDAPA 58.01.02.60.01

The EPA Action

In accordance with its CWA authority, 33 U.S.C. § 1313(c)(3) and 40 CFR § 131, the EPA approves IDAPA 58.01.02.60.01.

060.01 Mixing Zones for Point Source Discharges. Whether a mixing zone is authorized, and its size, configuration and location, is determined by the Department on a case-by-case basis. This determination is made in accordance with the provisions of Section 060 at the time a permit is issued, renewed, or materially modified and is in effect as long as the permit remains in effect. Such an authorization is required before a mixing zone can be used to determine the need for, or level of, effluent limits for a particular pollutant.

The EPA Rationale

The overarching mixing zone provision in IDAPA 58.01.02.60.01 establishes the authority for DEQ to authorize mixing zones. Further, the rule clarifies that authorization of a mixing zone is not guaranteed and DEQ determines the necessity as well as the size, configuration and location of the mixing zone on a case-by-case basis. The provision also specifies that the agency must authorize a mixing zone before one can be used to determine the need for, or the level of, effluent limits for a particular pollutant.

Regulations at 40 CFR 131.13 provide that states and tribes have the discretionary authority to include mixing zone policies in their water quality standards. Furthermore, the provision that DEQ determines whether a mixing zone is authorized, as well as its size, configuration and location, is consistent with the EPA's interpretation of the appropriate use of mixing zones in accordance with the CWA. Specifically, in the WQS Handbook, the EPA recommends that the use of mixing zones in permits "...be carefully evaluated and appropriately limited on a case-by-case basis in light of the overarching requirement to protect the designated use of the waterbody as a whole pursuant to 40 CFR 131.10."¹¹

¹¹ EPA WQS Handbook. Ch. 5, p. 4

C. New Impaired Waters and Mixing Zones Policy at IDAPA 58.01.02.60.01.a

The EPA Action

In accordance with its CWA authority, 33 U.S.C. § 1313(c)(3) and 40 CFR § 131, the EPA approves IDAPA 58.01.02.60.01.a.

a. Mixing zones shall not be authorized for a given pollutant when the receiving water does not meet water quality criteria for that pollutant; provided, however, the Department may authorize a mixing zone when the permitted discharge is consistent with an approved TMDL allocation or other applicable plans or analyses (such as 4b implementation plans, watershed loading analyses, or facility-specific water quality pollutant management plans) that demonstrate that there is available assimilative capacity and authorizing a mixing zone is consistent with achieving compliance with water quality standards in the receiving water.

The EPA Rationale

The new rule prohibits mixing zones for a particular pollutant when the receiving water does not meet water quality criteria for that pollutant unless there is an approved analysis that demonstrates assimilative capacity for that pollutant and that authorizing a mixing zone is consistent with achieving compliance with water quality standards in the receiving water. Assimilative capacity exists when the quality of the receiving water, after accounting for all possible loading of a pollutant, would be better than the criteria necessary to support beneficial uses.

The provision provides flexibility when the permitted discharge is consistent with an approved plan or analyses demonstrating that a mixing zone could be authorized consistent with meeting water quality standards. In its implementation guidance, DEQ notes that it would consider these approved plans or analyses on a case-by-case basis. This interpretation is consistent with IDAPA 58.01.02.060.01 and the EPA WQS Handbook regarding the use of mixing zones in permits “...be carefully evaluated and appropriately limited on a case-by-case basis in light of the overarching requirement to protect the designated use of the waterbody as a whole pursuant to 40 CFR 131.10.”¹² In the rule, the agency describes some examples of approved plans and analyses that could demonstrate that there is available assimilative capacity such as Total Maximum Daily Load (TMDL) wasteload allocations, 4b implementation plans, watershed loading analyses, or facility-specific water quality pollutant management plans. The DEQ implementation guidance notes that the evaluation of assimilative capacity should consider upstream permitted discharges, which may not yet be discharging at their permitted maximum loads.¹³

In its response to comments, the DEQ explained its reasoning to provide flexibility in allowing mixing zones in impaired waters. DEQ discussed that most TMDLs and similar analyses are developed at a coarse scale and it is possible that localized assimilative capacity exists at a point of discharge even though the larger assessment unit has been identified as impaired. DEQ notes that regardless of how local assimilative capacity is demonstrated, the analysis is subject to

¹² *Id.*

¹³ Idaho Mixing Zone Implementation Guidance, pp. 23-24

public comment through the permitting process and must show protection of downstream water quality. The DEQ also notes that an authorized mixing zone must still be consistent with achieving compliance with water quality standards in the receiving water.¹⁴

Based on these considerations, the EPA approves the rule provision because it only provides for mixing zones when assimilative capacity is available and designated uses and existing uses will be protected consistent with 40 CFR 131.11(a)(1) and 131.12(a)(1). The provision is also consistent with the EPA WQS Handbook which states that where the state or tribe generally allows mixing zones, the permitting authority may decide that a mixing zone is not appropriate for a particular discharge on a site-specific basis because the discharge may impair the designated use of the waterbody as a whole.¹⁵

D. New Chronic/Acute Water Quality Policy at IDAPA 58.01.02.60.01.b

The EPA Action

In accordance with its CWA authority, 33 U.S.C. § 1313(c)(3) and 40 CFR § 131, the EPA approves IDAPA 58.01.02.60.01.b.

b. Water quality within an authorized mixing zone is allowed to exceed chronic water quality criteria for those parameters approved by the Department. If approved by the Department, acute water quality criteria for one (1) or more parameters may be exceeded within the zone of initial dilution inside the mixing zone. Narrative criteria in Subsections 200.03 and 200.05 apply within the mixing zone. All water quality criteria must be met at the boundary of any mixing zone under its design conditions.

The EPA Rationale

The policy specifies where water quality criteria can be exceeded within a mixing zone. Acute and chronic water quality criteria can be exceeded within the zone of initial dilution. Chronic water quality criteria can be exceeded outside the zone of initial dilution to the boundary of the regulatory mixing zone.

The rule also requires that narrative criteria (IDAPA 58.01.02.200.03 and 200.05) apply within the mixing zone. These criteria require that surface waters “shall be free from deleterious materials in concentrations that impair designated beneficial uses” and “shall be free from floating, suspended, or submerged matter of any kind in concentrations causing nuisance or objectionable conditions or that may impair designated beneficial uses.” DEQ separately defines deleterious material (IDAPA 58.01.02.10.21) as “Any nontoxic substance which may cause the tainting of edible species of fish, taste and odors in drinking water supplies, or the reduction of the usability of water without causing physical injury to water users or aquatic and terrestrial organisms.”

¹⁴ Public Comment Summary, Idaho Department of Environmental Quality (Nov. 2014), pp. 2-3 (hereinafter “DEQ Public Comment Summary”) Available at <https://www.deq.idaho.gov/media/1118294/58-0102-1401-public-comment-summary-1114.pdf>

¹⁵ EPA WQS Handbook. Ch. 5, p. 4

These prohibitions, combined with IDAPA 58.01.02.60.01.d.iv, which prohibits lethality to organisms that pass through a mixing zone, reflect the EPA’s position that all waters, including water within mixing zones, should attain a minimum level of water quality by meeting certain narrative criteria.¹⁶ IDAPA 58.01.02.10.21, 200.03 and 200.05 provide protection of uses consistent with 40 CFR 131.11(a)(1) and 40 CFR 131.12(a)(1) by appropriately prohibiting certain nuisance and objectionable conditions within a mixing zone. These provisions are consistent with the EPA’s recommendation that mixing zones be free from “Materials in concentrations that settle to form objectionable deposits; Floating debris, oil, scum, and other material in concentrations that form nuisances; Substances in concentrations that produce objectionable color, odor, taste, or turbidity; and Substances in concentrations that produce undesirable aquatic life or result in a dominance of nuisance species.”¹⁷ The EPA is not acting on IDAPA 58.01.02.010.21.200.03 and 200.05 because they are not new or revised and therefore not subject to EPA review.

The provision is consistent with the EPA WQS Handbook which states that states and tribes may establish independent mixing zone size specifications that apply to each criteria type, such as acute and chronic aquatic life water quality criteria, for the same pollutant. In the zone of initial dilution, both the acute and the chronic criteria may be exceeded, however the acute criterion must be met at the edge of this zone.¹⁸

This provision also reflects the EPA’s emphasis that criteria exceedances and associated effects are to be limited to within a mixing zone.¹⁹ The EPA WQS Handbook states that “any effect on the existing use must be limited to the area of the regulatory mixing zone”²⁰ and “...where a mixing zone is authorized, water quality criteria are met at the edge of the mixing zone during critical low-flow conditions.”²¹ Limiting criteria exceedances and any associated acute or chronic effects to within properly located and sized mixing zones is consistent with requirements at 40 CFR 131.11(a)(1) and 40 CFR 131.12(a)(1) to protect designated uses and existing uses.

E. New Mixing Zone Size Policy at IDAPA 58.01.02.60.01.c

The EPA Action

In accordance with its CWA authority, 33 U.S.C. § 1313(c)(3) and 40 CFR § 131, the EPA approves IDAPA 58.01.02.60.01.c.

c. The size of mixing zone(s) and the concentration of pollutant(s) present shall be evaluated based on the permitted design flow. The Department shall not authorize a mixing zone that is determined to be larger than is necessary considering siting, technological, and managerial options available to the discharger.

¹⁶ EPA WQS Handbook, Ch. 5, p. 8

¹⁷ *Id.*

¹⁸ *Id.*

¹⁹ *Id.*

²⁰ EPA WQS Handbook, Ch. 5, p. 4

²¹ EPA WQS Handbook, Ch. 5, p. 3

The EPA Rationale

In this provision, DEQ requires that the mixing zone shall not be larger than necessary considering siting, technological, and managerial options available to the discharger. This provision allows DEQ to require additional data and analysis to condition the mixing zone appropriately for protection of beneficial uses.

The requirement that mixing zones must be “no larger than necessary” is consistent with the concept of “as small as practicable” in the EPA WQS Handbook. Specifically, the handbook states that “The area or volume of an individual mixing zone or group of mixing zones should be as small as practicable so that it does not interfere with the designated uses or with the established community of aquatic life in the segment for which the uses are designated.”²² DEQ reiterates this concept in its response to comment by stating “We agree that keeping mixing zones small is a fundamental principal, important to minimizing effects on aquatic resources in the waterbody as a whole.”²³ DEQ used the phrase, “as small as practicable,” in its previous mixing zone policy and confirmed that it interprets “no larger than necessary” to mean “as small as practicable.”²⁴

The DEQ implementation guidance provides additional information regarding conditioning the mixing zone based on siting, technological and managerial options available to the discharger. Siting options include the location point of discharge, technological options include treatment types and process alternatives, and managerial options typically involve water management.²⁵ DEQ notes in its response to comments, that “We do not believe judgment of necessity will be arbitrary. We do believe it will be case-specific.”²⁶

This provision, combined with IDAPA 58.01.02.60.01.d, which prohibits mixing zones that would cause unreasonable interference with, or danger to, beneficial uses, requires Idaho to limit the size, as well as the location, shape, and in-zone quality, of mixing zones to ensure protection of critical aquatic resource areas and uses in the waterbody as a whole consistent with 40 CFR 131.11(a)(1) and 40 CFR 131.12(a)(1). The EPA expects that DEQ’s overall evaluation and conditioning of mixing zones would take into consideration the physical, chemical, and biological characteristics of the discharge and receiving waterbody, the life history and behavior of organisms in the receiving waterbody, and the designated uses and existing uses of the waterbody.

This provision also states that the size and concentration of pollutants in a mixing zone is evaluated based on the permitted design flow. IDAPA 58.01.02.010.23 defines “design flow” as “the critical flow used for steady-state wasteload allocation modeling.” Consistent with this, 58.01.02.60.01.c ensures that design flow will be used to evaluate the mixing characteristics of

²² EPA WQS Handbook, Ch. 5, p. 6

²³ DEQ Public Comment Summary, p. 4

²⁴ Email response from Michelle Dale, Idaho DEQ WQS Coordinator, to Cyndi Grafe, EPA WQS Coordinator. December 5, 2019.

²⁵ Idaho Mixing Zone Implementation Guidance, p. 24

²⁶ DEQ Public Comment Summary, p. 4

the discharge with the receiving waters and determine the allowable size, if any, of a regulatory mixing zone. The DEQ implementation guidance further discusses design flow as part of effluent characteristics.²⁷ The Technical Support Document for Water Quality-based Toxics Control also defines “design flow” as “the flow used for steady-state wasteload allocation modeling” and the EPA believes it is therefore appropriate for mixing zone analysis.²⁸ The EPA is not acting on Idaho’s existing definition at IDAPA 58.01.02.010.23 because it is not new or revised and therefore not subject to EPA review.

F. New Unreasonable Interference Policy at IDAPA 58.01.02.60.01.d.i – vi

The EPA Action

In accordance with its CWA authority, 33 U.S.C. § 1313(c)(3) and 40 CFR § 131, the EPA approves IDAPA 58.01.02.60.01.d.

d. Mixing zones, individually or in combination with other mixing zones, shall not cause unreasonable interference with, or danger to, beneficial uses. Unreasonable interference with, or danger to, beneficial uses includes, but is not limited to, the following:

i. Impairment to the integrity of the aquatic community, including interfering with successful spawning, egg incubation, rearing, or passage of aquatic life.

ii. Heat in the discharge that causes thermal shock, lethality, or loss of cold water refugia.

iii. Bioaccumulation of pollutants (as defined in Section 010) resulting in tissue levels in aquatic organisms that exceed levels protective of human health or aquatic life.

iv. Lethality to aquatic life passing through the mixing zone.

v. Concentrations of pollutants that exceed Maximum Contaminant Levels at drinking water intake structures.

vi. Conditions which impede or prohibit recreation in or on the water body. Mixing zones shall not be authorized for E. coli.

The EPA Rationale

The broad provision at IDAPA 58.01.02.60.01.d prohibits mixing zones from causing unreasonable interference with, or danger to, beneficial uses. The rule defines what constitutes “unreasonable interference” by providing a list of examples at IDAPA 58.01.02.60.01.d.i - vi. The rule states that the definition of unreasonable interference “is not limited to” just these examples, thereby affording DEQ the authority to identify unreasonable interference beyond the cited examples. As DEQ notes in its response to comments, the new provision improves on the previous rule by providing more detail at IDAPA 58.01.02.60.01.d.i - vi on what constitutes unreasonable interference.²⁹

²⁷ Idaho Mixing Zone Implementation Guidance, p. 43

²⁸ Technical Support Document for Water Quality-based Toxics Control, U.S. Environmental Protection Agency (Mar. 1991), Glossary term (hereinafter “EPA 1991 TSD”) Available at <https://www3.epa.gov/npdes/pubs/owm0264.pdf>

²⁹ DEQ Pubic Comment Summary, p. 5

The broad requirements of IDAPA 58.01.02.60.01.d are applicable to any mixing zone authorization. The provision requires DEQ to individually evaluate mixing zones to prevent unreasonable interference or danger to uses. Throughout the DEQ implementation guidance, the department cites the prohibition against unreasonable interference and discusses protection of aquatic life and human health beneficial uses.³⁰ This provision requires DEQ to prevent unreasonable interference and provides broad authority to prohibit or condition mixing zones to protect aquatic life and human health.

The EPA approves IDAPA 58.01.02.60.01.d as being an appropriate safeguard which provides DEQ the authority to consider factors not otherwise listed in IDAPA 58.01.02.60.01.d.i - vi to ensure that a mixing zone will fully comply with IDAPA 58.01.02.60. Further, the provision provides DEQ the authority to ensure mixing zones are protective of designated uses and existing uses consistent with 40 CFR 131.11(a)(1), which requires that water quality criteria protect designated uses; 40 CFR 131.12(a)(1), which requires that existing uses be maintained and protected; and section 101(a) of the CWA, which in part states an objective to restore and maintain the biological integrity of the nation's waters. Lastly, IDAPA 58.01.02.60.01.d is consistent with the EPA WQS Handbook which recommends that the mixing zone "... does not interfere with the designated uses or with the established community of aquatic life in the segment for which the uses are designated."³¹

Unreasonable Interference Examples

The EPA approves IDAPA 58.01.02.60.01.d.i - vi as being appropriate examples of what DEQ considers to be unreasonable interference. These provisions provide DEQ the authority to limit the location, size, shape, and in-zone quality of mixing zones to ensure that they are protective of critical aquatic resource areas and designated uses and existing uses consistent with 40 CFR 131.11(a)(1), 40 CFR 131.12(a)(1), and section 101(a) of the CWA. In the discussion below, the EPA cites additional references specific to these provisions as further bases for this approval.

Protection of the Aquatic Community at IDAPA 58.01.02.60.01.d.i

This provision prohibits "Impairment to the integrity of the aquatic community, including interfering with successful spawning, egg incubation, rearing, or passage of aquatic life." The Idaho implementation guidance further informs how this provision will be interpreted. DEQ guidance states that mixing zones are authorized based on a case-by-case analysis and considers the composition of the aquatic community, seasonal dynamics of the water body, physical impacts the discharge may cause, and the concentrations and nature of the pollutants. The guidance further states that the biological community should be characterized before a mixing zone is authorized. Additionally, mixing zones where sensitive species are located will receive greater scrutiny and seasonal sensitivity of an aquatic community (e.g., during spawning runs or when vulnerable life stages are present) will be evaluated.³²

³⁰ Idaho Mixing Zone Implementation Guidance

³¹ EPA WQS Handbook Ch. 5, p. 6

³² Idaho Mixing Zone Implementation Guidance, p. 11

This provision is consistent with the EPA WQS Handbook which states that “If a state or tribe chooses to adopt a mixing zone policy, such a policy should ensure...Mixing zones do not endanger critical areas such as breeding or spawning grounds, habitat for threatened or endangered species, areas with sensitive biota, shellfish beds, fisheries,..”³³ The provision also reflects the EPA’s guidance that “mixing zones should be sized and located appropriately within the waterbody to provide a continuous zone of passage that protects migrating, free-swimming, and drifting organisms.”³⁴ Lastly, the provision reflects the EPA’s position that “States and tribes should conclude that mixing zones are not appropriate...where they may endanger critical areas such as breeding and spawning grounds...”³⁵

Heat in Discharge at IDAPA 58.01.02.60.01.d.ii

This provision prohibits “Heat in the discharge that causes thermal shock, lethality, or loss of cold water refugia” and is consistent with 131.11(a)(1) and 40 CFR 131.12(a)(1) because it provides protection of uses against heat related impacts, including disorientation and increased susceptibility to predation or disease (see definition of thermal shock at IDAPA 58.01.02.010.98); lethality; and impacts to aquatic habitat, i.e. “cold water refugia,” which is important to the viability of cold water species. Providing protection against such heat related impacts is also consistent with the EPA Region 10’s Temperature Guidance (2003) which recommends that water quality standards prohibit lethal temperatures, thermal shock, and adverse impacts to cold water refugia.³⁶ The DEQ implementation guidance references EPA’s temperature guidance to inform how the agency will implement this provision.³⁷ The DEQ guidance states that a mixing zone analysis will consider maximum temperature limitations regarding plume travel, cross-sectional areas, and spawning and egg incubation areas.³⁸

Additionally, DEQ’s implementation guidance recognizes temperature/heat as an attractive force that can result in organisms being exposed to a toxic discharge for an extended time.³⁹ The EPA WQS Handbook recommends that states and tribes prohibit a mixing zone when an effluent is known to attract biota since a zone of passage around the mixing area will not protect aquatic life in these cases where attraction may counter an avoidance response to a particular pollutant.⁴⁰ The DEQ implementation guidance discusses adverse impacts from attraction and references the EPA WQS Handbook.

IDAPA 58.01.02.60.01.d.ii complements IDAPA 58.01.02.60.01.d.i, which provides broad protection of aquatic community integrity, and IDAPA 58.01.02.60.01.d.iv, which prohibits lethality to organisms passing through a mixing zone.

³³ EPA WQS Handbook Ch. 5, pp. 3-4

³⁴ *Id.* at p. 7

³⁵ *Id.* at p. 9

³⁶ EPA Region 10 Guidance for Pacific Northwest State and Tribal Temperature Water Quality Standards, EPA 910-B-03-002 (Apr. 2003), available at <https://nepis.epa.gov/Exe/ZyPDF.cgi/P1004IUI.PDF?Dockey=P1004IUI.PDF>

³⁷ Idaho Mixing Zone Implementation Guidance, p. 25

³⁸ *Id.*

³⁹ *Id.* at pp. 14-15

⁴⁰ EPA WQS Handbook Ch. 5, p. 10

Bioaccumulation at IDAPA 58.01.02.60.01.d.iii

This provision prohibits “Bioaccumulation of pollutants (as defined in Section 010) resulting in tissue levels in aquatic organisms that exceed levels protective of human health or aquatic life.” IDAPA 58.01.02.10.10 defines bioaccumulation as “The process by which a compound is taken up by, and accumulated in the tissues of an aquatic organism from the environment, both from water and through food.” This provision is supported by the EPA WQS Handbook recommendation that mixing zones be restricted or eliminated for bioaccumulative pollutants.⁴¹ By restricting the bioaccumulation of pollutants when authorizing mixing zones, IDAPA 58.01.02.60.01.d.iii reflects the underlying intent of the EPA’s mixing zone guidance that the discharge of bioaccumulative pollutants be handled carefully to ensure that uses of a waterbody are protected.

IDAPA 58.01.02.60.01.d.iii provides protection of uses consistent with 40 CFR 131.11(a)(1) and 40 CFR 131.12(a)(1) by limiting the risk to human health and aquatic life due to mixing zones and bioaccumulation. Regarding human health, this provision reflects the EPA’s guidance for implementing mixing zones that are consistent with the CWA. The WQS Handbook states “...a mixing zone policy...should ensure...pollutant concentrations within the mixing zone do not cause significant human health risks considering likely pathways of exposure” and “...states and tribes should carefully consider whether mixing zones are appropriate where a discharge contains... bioaccumulative, pathogenic, persistent, carcinogenic, mutagenic, or teratogenic pollutants.”⁴² This provision is also consistent with the EPA Technical Support Document (TSD) for Water Quality-based Toxics Control (1991) which discusses preventing bioaccumulation problems for human health in calculating water quality-based effluent limits and recommending restricting or eliminating mixing zones for bioaccumulative pollutants.⁴³

Idaho’s implementation guidance complements the regulation by referencing a list of common bioaccumulative pollutants and recognizes that effluents may contain other bioaccumulative pollutants that should also be considered.⁴⁴ Idaho also adopted a definition of “bioaccumulative pollutants” at IDAPA 58.01.02.10.11, which is discussed in Section III.K of this document. The definition describes what would be considered a bioaccumulative pollutant, but does not limit DEQ’s authority under IDAPA 58.01.02.60.01.d.iii to address any pollutant that might bioaccumulate to levels exceeding those protective of human health or aquatic life.

Lethality at IDAPA 58.01.02.60.01.d.iv

This provision prohibits “Lethality to aquatic life passing through the mixing zone.” The provision is consistent with the EPA’s position that all waters, including water within mixing zones, should attain a minimum level of water quality and provides protection of uses consistent with 40 CFR 131.11(a)(1) and 40 CFR 131.12(a)(1) by prohibiting lethality to organisms that

⁴¹ *Id.* at p. 9

⁴² *Id.* at pp.3-4, 9

⁴³ EPA 1992 TSD, p. 72

⁴⁴ Idaho Mixing Zone Implementation Guidance, p. 32 and for pollutant list, see: www.deq.idaho.gov/media/60160659/bioaccumulative-pollutants.pdf

pass through a mixing zone, consistent with the EPA’s recommendation in the Water Quality Standards Handbook.⁴⁵ Related to this prohibition, IDAPA 58.01.02.60.01.b provides that acute water quality criteria may be exceeded in a zone of initial dilution and IDAPA 58.01.02.010.117 limits the size of such areas to ensure that lethality to passing organisms is prevented. The EPA’s approval of IDAPA 58.01.02.60.01.b and IDAPA 58.01.02.010.117 is discussed at Sections III.D and III.K of this document, respectively.

Drinking Water at IDAPA 58.01.02.60.01.d.v

This provision prohibits “Concentrations of pollutants that exceed Maximum Contaminant Levels at drinking water intake structures.” The provision provides protection of uses consistent with 40 CFR 131.11(a)(1) and 40 CFR 131.12(a)(1) by limiting the risk to human health consistent with the EPA’s WQS Handbook which states that mixing zones are not appropriate where they may endanger critical areas such as drinking water intakes and sources.⁴⁶ Maximum Contaminant Levels are the legally enforceable primary standards that apply to public water systems and protect public health by limiting the levels of contaminants in drinking water.

Recreation/ E.coli at IDAPA 58.01.02.60.01.d.vi

This provision prohibits “Conditions which impede or prohibit recreation in or on the water body. Mixing zones shall not be authorized for E. coli.” The provision provides protection of uses consistent with 40 CFR 131.11(a)(1) and 40 CFR 131.12(a)(1) by limiting the risk to human health, and is consistent with the EPA’s WQS Handbook which states that mixing zones are not appropriate where they may endanger critical areas such as recreational areas.⁴⁷

G. New Nested, Multiple, and Adjacent Mixing Zones Policies at IDAPA 58.01.02.60.01.e-g

The EPA Action

In accordance with its CWA authority, 33 U.S.C. § 1313(c)(3) and 40 CFR § 131, the EPA approves IDAPA 58.01.02.60.01.e-g.

58.01.02.60.01.e Multiple nested mixing zones may be established for a single point of discharge, each being specific for one (1) or more pollutants contained within the discharge.

58.01.02.60.01.f Multiple mixing zones may be established for a single activity with multiple points of discharge. When these individual mixing zones overlap or merge, their combined area and volume shall not exceed that which would be allowed if there was a single point of discharge. When these individual mixing zones do not overlap or merge, they may be authorized as individual mixing zones.

58.01.02.60.01.g Adjacent mixing zones of independent activities shall not overlap.

⁴⁵ EPA WQS Handbook Ch. 5, p. 6

⁴⁶ *Id.* at p. 4

⁴⁷ *Id.*

The EPA Rationale

These requirements pertain to mixing zones for multiple pollutants and mixing zones for multiple points of discharge from both single and multiple independent activities. IDAPA 58.01.02.60.01.e allows for multiple mixing zones, within one overall regulatory mixing zone, for a single discharge (single outfall) with each mixing zone being specific for one or more pollutants contained within the discharge. For example, DEQ may authorize a mixing zone for zinc that uses 25% of the low-flow design discharge conditions and for the same outfall authorize a mixing zone for copper that uses 15% of the low-flow design discharge conditions. IDAPA 58.01.02.60.01.f provides that when individual mixing zones for a single activity with multiple points of discharge do not overlap, the state may authorize them as individual mixing zones. If there is overlap, then the sum of the area and volume of the multiple mixing zones must not exceed requirements for a single point of discharge. IDAPA 58.01.02.60.01.g prohibits the overlap of adjacent mixing zones from independent activities.

Provisions providing that DEQ determines the size and configuration of mixing zones are consistent with the EPA's interpretation of the appropriate use of mixing zones in accordance with the CWA. Specifically, in the WQS Handbook, the EPA recommends that the use of mixing zones in permits "...be carefully evaluated and appropriately limited on a case-by-case basis in light of the overarching requirement to protect the designated use of the waterbody as a whole pursuant to 40 CFR 131.10."⁴⁸ IDAPA 58.01.02.60.01.e and f are consistent with the EPA WQS Handbook which states that permitting authorities should evaluate the cumulative effects of multiple mixing zones within the same waterbody.⁴⁹ IDAPA 58.01.02.60.01.g also reflects the EPA guidance which states that mixing zone policies should specify that mixing zones not overlap due to potential additive or synergistic effects of certain pollutants.⁵⁰

Furthermore, the implementation of IDAPA 58.01.02.60.01.e, f, and g is subject to the other provisions of IDAPA 58.01.02.60.01, which require that the size, configuration, and location of mixing zones be determined on a case-by-case basis, that mixing zones must meet the narrative criteria at IDAPA 58.01.02.200.03 and 05, that mixing zones not be larger than necessary, and that mixing zones "individually or in combination with other mixing zones" (emphasis added) shall not cause unreasonable interference or danger to designated uses and existing uses.⁵¹

H. New Mixing Zone Restriction and Discretion Policies at IDAPA 58.01.02.60.01.h - i

The EPA Action

In accordance with its CWA authority, 33 U.S.C. § 1313(c)(3) and 40 CFR § 131, the EPA approves IDAPA 58.01.02.60.01.h – i.

⁴⁸ *Id.*

⁴⁹ *Id.*

⁵⁰ *Id.*

⁵¹ *See* IDAPA 58.01.02.60.01, and 01.b, c, and d

4. Mixing zones shall meet the following restrictions; provided, however, that the Department may authorize mixing zones that vary from the restrictions under the circumstances set forth in Subsection 060.01.i below:
- 1. For flowing waters:
 - (1) The width of a mixing zone is not to exceed twenty-five percent (25%) of the stream width; and
 - (2) The mixing zone shall not include more than twenty-five percent (25%) of the low flow design discharge conditions as set forth in Subsection 210.03.b. of these rules. - 2. For all new discharges to nonflowing waters authorized after July 1, 2015:
 - (1) The size of the mixing zone is not to exceed five percent (5%) of the total open surface area of the water body or one hundred (100) meters from the point of discharge, whichever is smaller;
 - (2) Shore-hugging plumes are not allowed; and
 - (3) Diffusers shall be used. - 3. For all existing discharges to nonflowing waters authorized prior to July 1, 2015, the total horizontal area allocated to the mixing zone is not to exceed ten percent (10%) of the surface area of the lake:
 - (1) Lakes and reservoirs with a mean detention time of fifteen (15) days or greater shall be considered nonflowing waters for this purpose. Detention time will be calculated as the mean annual storage volume divided by the mean annual flow rate out of the reservoir for the same time period.
 - i. The Department may authorize a mixing zone that varies from the limits in Subsection 060.01.h if it is established that:
 - i. A smaller mixing zone is needed to avoid an unreasonable interference with, or danger to, beneficial uses as described in Subsection 060.01.d., and the mixing zone meets the other requirements set forth in Section 060; or
 - ii. A larger mixing zone is needed by the discharger and does not cause an unreasonable interference with, or danger to, beneficial uses as described in Subsection 060.01.d., and the mixing zone meets the other requirements set forth in Section 060. The discharger shall provide to the Department an analysis that demonstrates a larger mixing zone is needed given siting, technological, and managerial options.

The EPA Rationale

IDAPA 58.01.02.060.01.h lists specific default size restrictions for mixing zones in flowing waters, mixing zone default size and design restrictions for new dischargers (authorized after July 1, 2015) in nonflowing waters, and mixing zone default size restrictions for existing discharges (authorized prior to July 1, 2015) in nonflowing waters. The size restrictions at IDAPA 58.01.02.060.01.h are presented as values that are not to be exceeded, rather than values that are assumed to be acceptable, and IDAPA 58.01.02.060.01.i also emphasizes DEQ's discretion to require mixing zones smaller than the upper defaults. Additionally, IDAPA 58.01.02.060.01.i affords DEQ with the discretion to authorize mixing zones that are larger than the defaults if a discharger can show need and a larger mixing zone does not cause "unreasonable interference" with uses and is consistent with the other requirements of IDAPA 58.01.02.060.

As discussed further below, Idaho's approaches to defining the default size restrictions are

consistent with approaches discussed in the EPA’s WQS Handbook. Additionally, implementation of IDAPA 58.01.02.60.01.h and i is subject to the overarching mixing zone provision at IDAPA 58.01.02.60.01, which establishes the authority for DEQ to issue mixing zones and underscores that mixing zone size, configuration and location is established on a case-by-case basis. While IDAPA 58.01.02.60.01.h - i provide guidelines for developing mixing zone size, shape, and location, all mixing zones must still meet the other requirements of IDAPA 58.01.02.60, including IDAPA 58.01.02.60.01.c, which states that the mixing zone shall not be larger than necessary considering siting, technological, and managerial options available to the discharger, and IDAPA 58.01.02.60.01.d, which prohibits mixing zones from causing, “unreasonable interference” to uses.

IDAPA 58.01.02.60.01.h – i, in combination with the provisions cited above, are consistent with the EPA WQS Handbook which explains that typically mixing zone policies specify general spatial dimensions that limit their size. The Handbook further recommends that states develop various methods to define the maximum allowable size of mixing zones and often limit mixing zone widths, cross-sectional areas, and/or flow volumes and allow lengths to be determined on a case-by-case basis. Additionally, the Handbook explains that for lakes, dimensions are usually specified by surface area, width, cross-sectional area, and/or volume.⁵²

IDAPA 58.01.02.60.01.h.ii.2 for newer dischargers in non-flowing waters is supported by the EPA WQS Handbook which states that “Shore-hugging plumes should be avoided in all waterbodies. Shore areas are often the most biologically productive and sensitive areas of a waterbody, and they are often used for recreation. Shore-hugging plumes generally do not mix as well with receiving waters and, thus, do not dilute as well as mixing zones with other shapes that do not hug shorelines. Because shore-hugging plumes tend to keep unmixed water over the benthic area or in the recreational area, they are more likely to adversely affect the designated uses of the waterbody.”⁵³ For flowing waters, it is the EPA’s understanding that DEQ will also rely on other provisions such as IDAPA 58.01.02.60.01, IDAPA 58.01.02.60.01.c, IDAPA 58.01.02.60.01.d., and IDAPA 58.01.02.60.01.j to address shore-hugging plumes and protect designated and existing uses.

Diffuser requirements at IDAPA 58.01.02.60.01.h.ii.3 for newer dischargers in non-flowing waters is supported by the EPA WQS Handbook which states that “...state and tribal mixing zone policies should instruct dischargers to utilize the best practicable engineering design of the outfall to maximize initial mixing.”⁵⁴ DEQ explains in its implementation guidance that use of diffusers is not always practicable for waterbodies, “DEQ encourages, but does not require, diffusers for discharges to flowing waters. While DEQ recognizes there may be instances where installing a diffuser results in more harm than good, or does not result in any added environmental benefits, diffusers generally result in more rapid mixing, decreasing the area containing elevated concentrations and thus minimizing effects on beneficial uses.”⁵⁵

⁵² EPA WQS Handbook, Ch. 5, p. 5

⁵³ *Id.* at p. 8

⁵⁴ *Id.*

⁵⁵ Idaho Mixing Zone Implementation Guidance, p. 22

I. New Mixing Zone Outfall Zone Policy at IDAPA 58.01.02.60.01.j

The EPA Action

In accordance with its CWA authority, 33 U.S.C. § 1313(c)(3) and 40 CFR § 131, the EPA approves IDAPA 58.01.02.60.01.j.

- i. The following elements shall be considered when designing an outfall:
- i. Encourage rapid mixing to the extent possible. This may be done through careful location and design of the outfall; and
- ii. Avoid shore-hugging plumes in those water bodies where the littoral zone is a major supply of food and cover for migrating fish and other aquatic life or where recreational activities are impacted by the plume.

The EPA Rationale

This requirement describes the concept of discharge design and location considerations to encourage rapid mixing that keeps the size of mixing zones small by maximizing initial mixing. The provision also avoids shore-hugging plumes in those water bodies where the littoral zone is a major supply of food and cover for migrating fish and other aquatic life or where recreational activities are impacted by the plume.

IDAPA 58.01.02.60.01.j.i is consistent with the EPA WQS Handbook, which states that “...state and tribal mixing zone policies should instruct dischargers to utilize the best practicable engineering design of the outfall to maximize initial mixing.”⁵⁶ The provision is also consistent with the EPA TSD (1991), which encourages design elements to improve rapid mixing.⁵⁷ IDAPA 58.01.02.60.01.j.ii is supported by the EPA WQS Handbook, which states that “Shore-hugging plumes should be avoided in all waterbodies.”⁵⁸

The EPA has emphasized that decisions concerning mixing zone location, size, shape, in-zone quality, and outfall design should be made such that critical areas and uses in the waterbody as a whole are protected.⁵⁹ While IDAPA 58.01.02.60.01.j only references consideration of certain measures that are consistent with protection of critical areas and uses in the waterbody as a whole, there may be cases where implementation of such measures would be required to satisfy other provisions in Idaho’s mixing zone policy, such as to prevent unreasonable interference or danger to uses in accordance with IDAPA 58.01.02.60.01.d.

J. New Points of Compliance as Alternatives to Mixing Zones at IDAPA 58.01.02.60.02

The EPA Action

⁵⁶ EPA WQS Handbook, Ch. 5, p. 8

⁵⁷ EPA 1991 TSD, Section 4.4

⁵⁸ EPA WQS Handbook, Ch. 5, p. 8

⁵⁹ EPA WQS Handbook, Ch. 5; 63 FR 36742, 36787-93, July 7, 1998

In accordance with its CWA authority, 33 U.S.C. § 1313(c)(3) and 40 CFR § 131, the EPA approves IDAPA 58.01.02.60.

060.02 Points of Compliance as Alternatives to Mixing Zones. Specification of mixing zones for some 404 dredge and fill activities, stormwater, and nonpoint source discharges may not be practicable due to the generally intermittent and diffuse nature of these discharges. Rather, the Department may allow limited dilution of the discharge by establishing points for monitoring compliance with ambient water quality criteria. These alternatives to a mixing zone are still subject to requirements outlined in Subsections 060.01.a., 060.01.d., 200.03, and 200.05.

The EPA Rationale

This section provides that DEQ may allow limited dilution for certain discharges (i.e. “some 404 dredge and fill activities, stormwater, and nonpoint source discharges”) by establishing points for monitoring compliance with ambient water quality criteria when the nature of the discharge precludes a mixing zone analysis. The section also provides that “these alternatives to mixing zones” are subject to the mixing zone and water quality requirements at IDAPA 58.01.02.060.01.a., 060.01.d., 200.03, and 200.05.

Notwithstanding that IDAPA 58.01.02.60.02 is presented as an alternative to mixing zones, the EPA understands it to be functionally the same as authorizing mixing zones because it provides for dilution of a discharge and allows areas where certain water quality criteria may be exceeded in the receiving water. A primary difference being that rather than establishing effluent limitations based on the authorized dilution to ensure that water quality criteria will be met at the desired locations in the receiving water, IDAPA 58.01.02.60.02 requires receiving water monitoring as a means to ensure that water quality are met at the desired locations. Like mixing zones, this “points of compliance” approach must not cause unreasonable interference with, or danger to, beneficial uses (060.01.d), and the area of the receiving water used for dilution must meet a minimum level of water quality by being free of deleterious materials (200.03) and free from floating, suspended, or submerged matter of any kind in concentrations causing nuisance or objectionable conditions or that may impair designated beneficial uses (200.05).

As explained earlier, IDAPA 58.01.02.060.01.d, and the requirement to meet the narrative criteria at 200.03 and 200.05, reflect the EPA’s guidance for ensuring that mixing zones are consistent with the CWA. Meeting the requirements at IDAPA 58.01.02. 060.01.d., 200.03, and 200.05 necessitates that DEQ appropriately limit the location, size, shape, and in-zone quality when implementing “points of compliance” to ensure protection of critical aquatic resource areas and uses in the waterbody as a whole consistent with 40 CFR 131.11(a)(1) and 40 CFR 131.12(a)(1).

Additionally, the requirement for consistency with IDAPA 58.01.02.060.01.a appropriately limits use of the “points of compliance” approach, if the receiving water does not meet water quality criteria for a given pollutant, to cases where there is an approved analysis that demonstrates assimilative capacity for that pollutant and that allowing dilution is consistent with achieving compliance with water quality standards (also see discussion and approval of IDAPA 58.01.02.60.01.a).

K. Definitions

Idaho revised IDAPA 58.01.02.010.117, repealed IDAPA 58.01.02.010.54 and 010.55, and added IDAPA 58.01.02.010.11 and 010.98. In accordance with its CWA authority, 33 U.S.C. § 1313(c)(3) and 40 CFR § 131, and for the reasons discussed below, the EPA approves these changes.

1. New Bioaccumulative Pollutants Definition at IDAPA 58.01.02.010.11

The EPA Action

In accordance with its CWA authority, 33 U.S.C. § 1313(c)(3) and 40 CFR § 131, the EPA approves the addition of IDAPA 58.01.02.010.11.

11. Bioaccumulative Pollutants. A compound with a bioaccumulation factor of greater than one thousand (1,000) or a bioconcentration factor of greater than one thousand (1,000).

The EPA Rationale

DEQ developed IDAPA 58.01.02.010.11 to improve understanding of what pollutants might be considered bioaccumulative. DEQ noted in its public comment summary that the values of 1,000 are based on the Great Lakes Initiative (GLI) definition of a “Bioaccumulative chemical of concern.”⁶⁰ Bioconcentration factor (BCF) and bioaccumulation factor (BAF) are different measures of a compound’s tendency to accumulate in the food chain. The DEQ public comment summary further states that while BAF is generally preferred over BCF, BAFs are less easily measured. DEQ explains that it chose to have dual thresholds because BCFs were more generally available.⁶¹ DEQ also stated that bioaccumulative pollutants can be interpreted differently, so the agency defined the term in rule to consistently identify bioaccumulative substances in implementing the mixing zone policy. The EPA WQS Handbook cautions states and tribes about allowing mixing zones for bioaccumulative pollutants because human health may not be protected as a whole.⁶²

2. Deletion of LC50 Definition at IDAPA 58.01.02.010.54

The EPA Action

In accordance with its CWA authority, 33 U.S.C. § 1313(c)(3) and 40 CFR § 131, the EPA approves the deletion of IDAPA 58.01.02.010.54.

~~54. **LC-50.** *The toxicant concentration killing fifty percent (50%) of exposed organisms at a specific time of observation (e.g., ninety-six (96) hours).* (3-20-97)~~

⁶⁰ DEQ Public Comment Summary, p. 1

⁶¹ *Id.*

⁶² EPA WQS Handbook, pp.9-10

The EPA Rationale

DEQ deleted this definition as a house keeping change. In its public comment summary, Idaho stated that the LC50 definition was no longer used in its water quality standards and therefore, the department deleted the definition.⁶³ A review of Idaho’s current WQS found one reference to LC50 in a footnote at IDAPA 58.01.02.210.03.c.iii. This section discusses the calculation of water effects ratios for aquatic life metals criteria and defines LC50 in the footnote for that purpose. Since the deleted definition is not essential to the meaning and understanding of Idaho’s WQS, the EPA approves the deletion.

3. Deletion of Outstanding Resource Waters for Mixing Zones Definition at IDAPA 58.01.02.010.55

The EPA Action

In accordance with its CWA authority, 33 U.S.C. § 1313(c)(3) and 40 CFR § 131, the EPA approves the deletion of IDAPA 58.01.02.010.55.

~~55. **Outstanding Resource Water Mixing Zone.** An area or volume of an ORW where pollutants are allowed to mix with the ORW receiving water at a location distinct from the sampling point where compliance with ORW quality standards is measured. An ORW mixing zone will be downstream from the discharge of a tributary or a segment immediately upstream which contains man caused pollutants as a result of nonpoint source activities occurring on that tributary or segment. As a result of the discharge, the mixing zone may not meet all water quality standards applicable to the ORW, but shall still be protected for existing beneficial uses. The Department, after consideration of input from interested parties, will determine the size, configuration and location of mixing zones which are necessary to meet the requirements of this chapter. (7-1-93)~~

The EPA Rationale

DEQ deleted the term “Outstanding Resource Water Mixing Zone” from the mixing zone policy and determined that with this deletion the definition was no longer necessary. Accordingly, DEQ deleted the definition for consistency with the mixing zone policy.⁶⁴ The EPA approves deletion of IDAPA 58.01.02.010.55 as a housekeeping change that accompanied repeal of the original IDAPA 58.01.02.060.02 (where the phrase was used in Idaho’s mixing zone policy).⁶⁵

The EPA notes, however, that the term “Outstanding Resource Water Mixing Zone” is used in Idaho’s antidegradation policy at IDAPA 58.01.02.52.09.f.i. The EPA is not reviewing and acting on IDAPA 58.01.02.52.09.f.i, including the term “Outstanding Resource Water Mixing Zone” as it is used in that provision, because it is not a new or revised water quality standard, and therefore is not subject to EPA review. Idaho has the discretion to provide definitions for terms used in its water quality standards. To the extent that Idaho were to authorize Outstanding Resource Water Mixing Zones, DEQ has stated that such authorizations would be consistent with

⁶³ DEQ Public Comment Summary, p. 1

⁶⁴ DEQ Public Comment Summary, p. 2

⁶⁵ DEQ Public Comment Summary

Idaho's approved mixing zone and antidegradation policies.⁶⁶

4. New Thermal Shock Definition at IDAPA 58.01.02.010.98

The EPA Action

In accordance with its CWA authority, 33 U.S.C. § 1313(c)(3) and 40 CFR § 131, the EPA approves the addition of IDAPA 58.01.02.010.98.

98. Thermal Shock. A rapid temperature change that causes aquatic life to become disoriented or more susceptible to predation or disease.

The EPA Rationale

The “thermal shock” definition establishes what the term means as used at IDAPA 58.01.02.060.01.d.ii, which states that thermal plumes from mixing zones must not result in “thermal shock, lethality, or loss of coldwater refugia due to heat in a discharge.” The definition provides information important for understanding the scope of the prohibitions at IDAPA 58.01.02.060.01.d.ii regarding heat to ensure that mixing zones do not result in unreasonable interference with uses. The EPA discusses the implementation of this definition under the unreasonable interference rule provision at *Heat in Discharge at IDAPA 58.01.02.60.01.d.ii*.

In its public comment summary, DEQ responded to concerns regarding the qualitative nature of this definition. DEQ explained that due to variabilities in communities as well as seasonal and spatial difference in prevailing temperatures, the department would have to set very conservative fixed quantitative values for temperature change and rate of change. To allow flexibility in addressing this variability, the DEQ defined thermal shock in terms of observed effects of disorientation and increased susceptibility to disease and predation.⁶⁷

5. Revision of Zone of Initial Dilution (ZID) Definition at IDAPA 58.01.02.010.117

The EPA Action

In accordance with its CWA authority, 33 U.S.C. § 1313(c)(3) and 40 CFR § 131, the EPA approves the revision of IDAPA 58.01.02.010.117.

117. Zone of Initial Dilution (ZID). An area within a Department authorized mixing zone where acute criteria may be exceeded. This area ~~should be as small as practicable~~ shall be no larger than necessary and assure shall be sized to prevent lethality to swimming or drifting organisms by ensuring that drifting organisms are not exposed to acute concentrations exceeding acute criteria for more than one (1) hour more than once in three (3) years. The actual size of the ZID will be

⁶⁶ Email from Michelle Dale, Idaho Department of Environmental Quality, to Cyndi Grafe, U.S. EPA Region 10, re: ID Mixing Zone Questions, (Dec. 5, 2019)

⁶⁷ DEQ Public Comment Summary, p. 7

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.

The EPA Rationale

DEQ revised the zone of initial dilution definition to reflect concepts outlined in IDAPA 58.01.02.060.01.c and 060.01.d., that mixing zones shall be no larger than necessary and sized to prevent unreasonable interference, or danger to, aquatic life. The language clarifies the implementation of the mixing zone rule stating acute criteria may only be exceeded within the zone of deposit (ZID) and that this exceedance is limited. Such limitations on the mixing zone size and exposure of aquatic life reduce the risk of impacts to aquatic life.

DEQ's mixing zone implementation guidance addresses four specific scenarios that are consistent with the EPA's guidance for preventing lethality to organisms passing through a mixing zone.⁶⁸ These scenarios illustrate how DEQ will implement the revised ZID definition to prevent lethality to aquatic life passing through a mixing zone by limiting the size of the acute mixing zone/ZID, exceedance of the acute criteria, and duration of exposure.⁶⁹ In its response to comments, the DEQ further clarifies the protection provided by the definition by stating, "The size of the ZID will be based on avoiding lethality. A size that would cause duration of exposure to a concentration of a toxin expected to cause lethality would be too large."⁷⁰

The EPA WQS Handbook for mixing zones explains that it is not always necessary to meet all water quality criteria at the point of discharge to protect the integrity and uses of the water body as a whole and it is at times appropriate to allow for ambient concentrations above the criteria in small areas near outfalls or "mixing zones."

Further, states and tribes may establish independent mixing zone size specifications that apply to each criteria type, such as acute and chronic aquatic life water quality criteria, for the same pollutant. In the zone of initial dilution, both the acute and the chronic criteria may be exceeded, however the acute criterion must be met at the edge of this zone.⁷¹ Idaho's definition is consistent with the EPA WQS Handbook which states that states and tribes should ensure that "Pollutant concentrations within the mixing zone are not lethal to organisms passing through the mixing zone."⁷²

⁶⁸ EPA 1991 TSD, p. 33

⁶⁹ Idaho Mixing Zone Implementation Guidance, p. 12

⁷⁰ DEQ Public Comment Summary, p. 1

⁷¹ EPA WQS Handbook, Ch. 5, p. 6

⁷² EPA WQS Handbook, Ch. 5, p. 3