Negotiated Site Specific Rule Development

Selenium

58-0102-2601

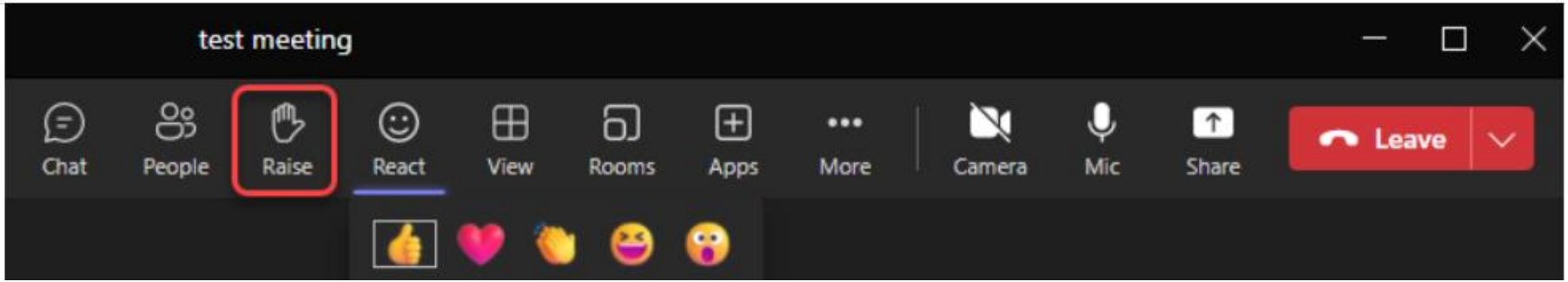
STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

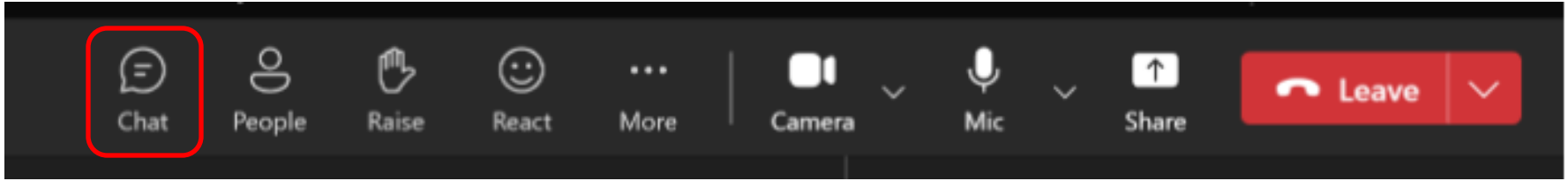
Beth Spelsberg
Senior Water Quality Standards Scientist

Agenda Slide

- Introductions
- Housekeeping
- Overview of process and current timeline
- Summary of comments received from first meeting
- Discussion
- Summary of updates to rule language
- Questions

Housekeeping





Overview

- Negotiated Rule making for docket 58-0102-2601
  - Rule language clean up
  - Site specific criteria development for selenium

Timeline

58-0102-2601: Water Quality Standards - Selenium	
8-Apr	First Negotiated Rule Meeting
15-Apr	End feedback period (one week comment period)
5-May	Negotiated Rule Draft 2 due
12-May	Second Negotiated Rule Meeting
19-May	End feedback period (one week comment period)
	PROPOSED RULE
17-Jul	Submit documents to DFM
2-Sep	Proposed Rule Published in September Bulletin *Last Bulletin for 2027 effective date!
2-Oct	30-day comment period
	PENDING RULE
12-Nov	Board Meeting: Present rule docket for approval
6-Jan	Pending Rule posted in January Bulletin
	LEGISLATIVE APPROVAL
Jan/Feb 2027	Present rule to House and Senate committees for approval

IDAPA 58.01.02 Clean Up

Waters of the United States

- **Water Quality Standards**

010. DEFINITIONS.

~~For the purpose of the rules contained in IDAPA 58.01.02, "Water Quality Standards," the following definitions apply:~~The term "waters" or "water body" is defined in Section 39-3602, Idaho Code, and the term "surface waters" shall be interpreted as the same.

- **USGS update streams named sq__w throughout the state in 2022 and DEQ changing those in the rule to match.**

SW-7 ~~Squaw Creek~~Newe Waippe Naokwaide - source to mouth

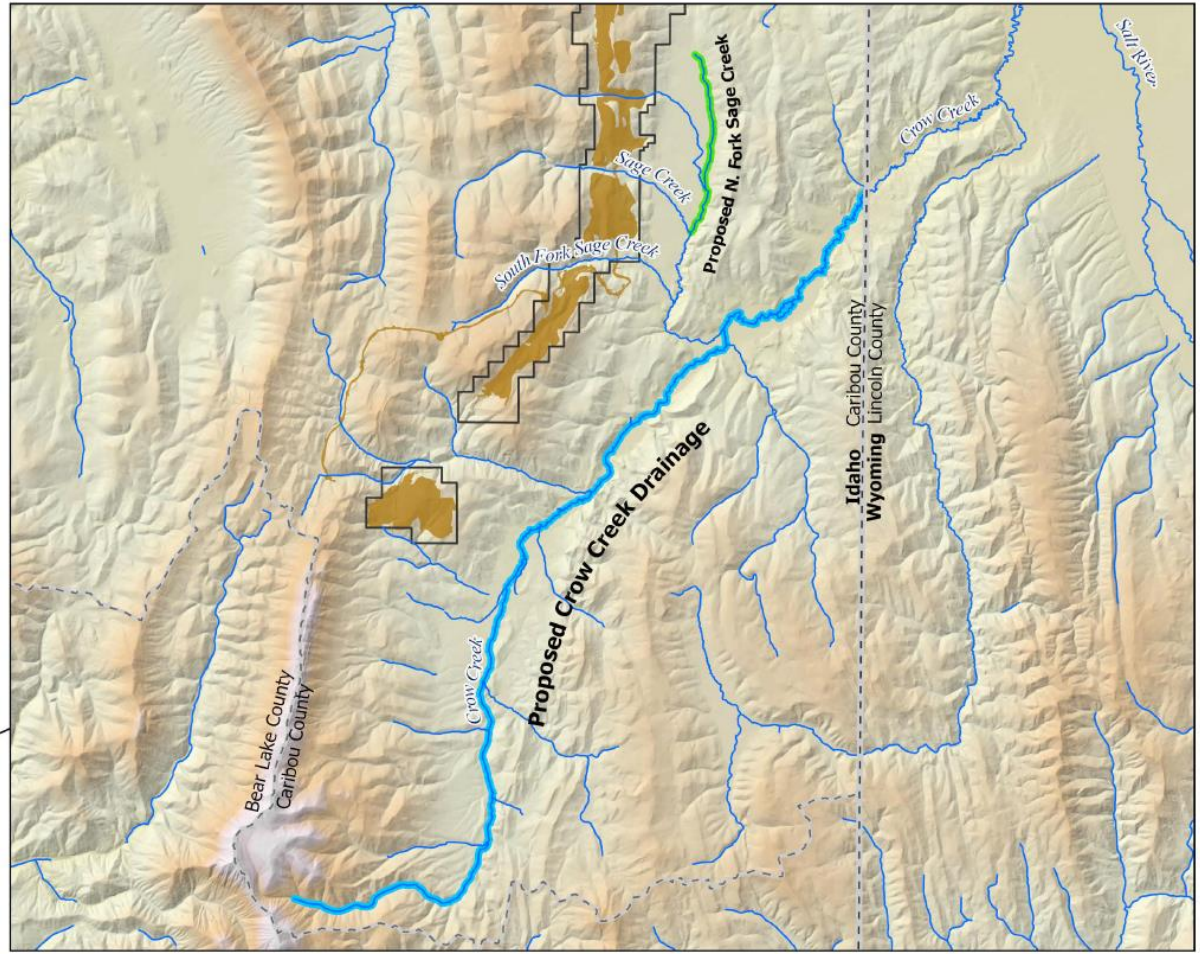
- **Remove "comparative purposes only" values**

f. Aquatic life criteria for these metals are a function of total hardness (mg/L as calcium carbonate), the pollutant's water effect ratio (WER) as defined in Subsection 210.03.c.iii. and multiplied by an appropriate dissolved conversion factor as defined in Subsection 210.02. ~~For comparative purposes only, the example values displayed in this table are shown as dissolved metal and correspond to a total hardness of one hundred (100) mg/L and a water effect ratio of one (1.0).~~

IDAPA 58.01.02 Site Specific Criteria

Proposed Site-Specific Criteria - North Fork Sage Creek and Crow Creek Drainage

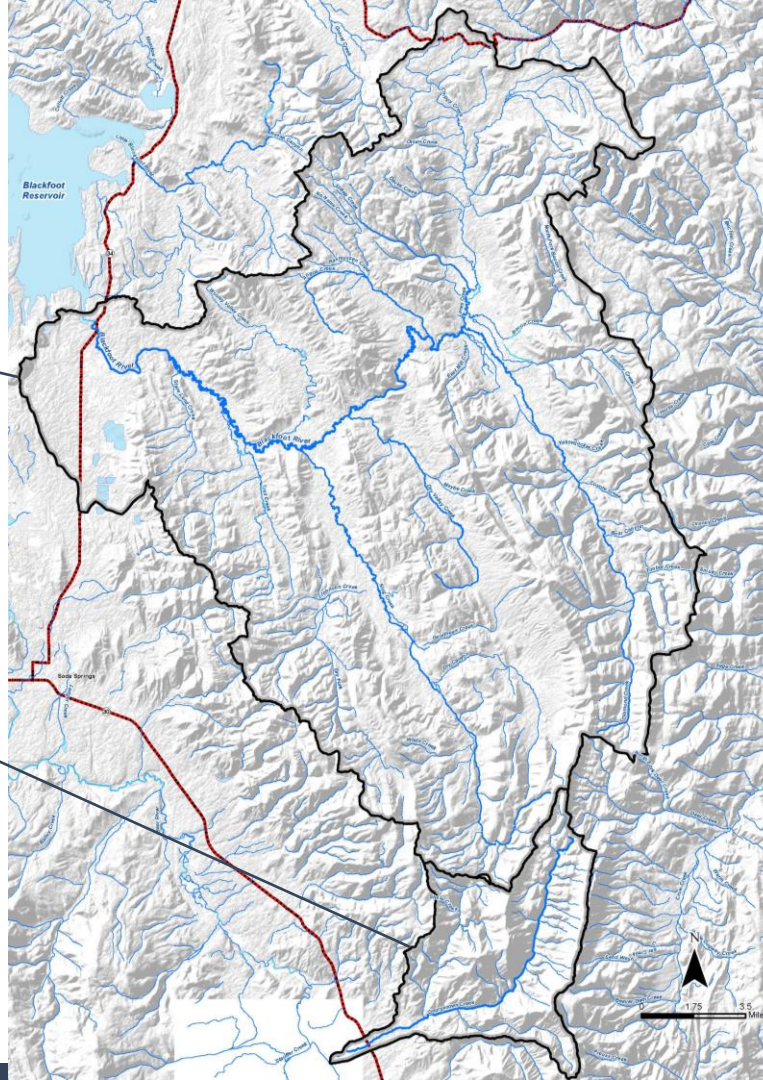




Selenium SSC

Subsection of Blackfoot Sub-Basin:
Blackfoot River – confluence of Lanes and Diamond Creeks to Blackfoot Reservoir (unit US-10), and all tributaries thereof

Georgetown Creek:
Source to mouth (unit B-22), and all tributaries thereof



Comments

- Share all raw data
- Clarify site description
- Species distribution
- Protectiveness of tissue elements to other aquatic species
- For NFSC how were outliers determined
- Geomean vs direct measure
- Juvenile tissue vs. adult tissue values
- Rationale of new tissue values without recalculation of water column
- Protection of downstream waters

Protection of downstream waters

IDAPA 58.01.02.070.08: **Protection of Downstream Water Quality**.
All waters shall maintain a level of water quality at their pour point into downstream waters that provides for the attainment and maintenance of the water quality standards of those downstream waters, including waters of another state or tribe.

IDAPA 58.01.02.080.01.a: **Violation of Water Quality Standards**
No pollutant shall be discharged from a single source or in combination with pollutants discharged from other sources in concentrations or in a manner that will or can be expected to result in violation of the water quality standards applicable to the receiving water body or **downstream waters**

IDAPA 58.01.02.010.01.v: **Designation of Beneficial Uses**
In designating beneficial uses, which a water body can reasonably be expected to attain, the Department shall consider the attainment and maintenance of the water quality standards of downstream waters, including the **waters of downstream states**

Protection of downstream waters

IDAPA 58.01.25.103.03 **Permit Prohibitions**.
No permit may be issue when the imposition of conditions cannot ensure compliance with the applicable water quality requirements of all affected States.

IDAPA 58.01.25.103.03 **Applicable Standards and Limitations**.
All state, interstate, and federal standards and limitations to which a discharge, a sewage sludge use or disposal practice, or a related activity is subject under the Clean Water Act, including effluent limitations, water quality standards, standards of performance, toxic effluent standards or prohibitions, best management practices, pretreatment standards, and standards for sewage sludge use or disposal under the Clean Water Act sections 301, 302, 303, 304, 306, 307, 308, 402 and 405.

40 CFR 122.44(d)(4), NPDES permits must include any requirements necessary to “conform to applicable water quality requirements under § 401(a)(2) of CWA when the discharge affects a State other than the certifying State.”

Discussion

Site Specific Criteria Proposals

Addressing the following comments would add clarification and strengthen the site-specific proposals. This information and level of detail is necessary to verify the criteria are protective and based on sound science for the EPA's ultimate criteria review and CWA 303(c) action.

Data: All of the raw data and analyses for development of the site-specific criteria should be made available.

Site descriptions: Sites identified in the site-specific proposals should be clearly delineated based on geographic features and should be consistent with the site descriptions in the Water Quality Standards. Additionally, in the cover letter to IDEQ, Simplot states that there is no site-specific criterion proposed for Pole Canyon Creek, but in table of the draft proposal, Table ES-1 states that the criterion elements would apply to "North Fork Sage Creek and Tributaries – Source to Mouth" and in Section 2.3 it states that "… the Site or geographic scope of applicability includes NFSC and its tributaries (e.g., PCC)". Additional information about the specific boundaries of the sites is necessary to evaluate where the SSCs apply and whether the proposed criteria are protective.

Fish Surveys and Species Distributions. For all proposals, include any new fish surveys that confirm the species present in the waters with proposed SSCs, or a brief description of why there wouldn't be any expected changes in species present since the last surveys were completed. In addition, please provide descriptions of the upper tributaries that do not have fish data, explaining why it is reasonable to assume that the species composition in these waters is the same as in the downstream waters (or why you would not expect any additional species to be present in these tributaries).

Protectiveness of Muscle and Whole-Body elements to other aquatic species. Since the criteria will need to be protective of all aquatic life, including other fish species, the proposals should describe how applying the Brown Trout muscle and whole-body elements to other fish species will ensure that those species' egg-ovary concentrations will not exceed their species-specific threshold.

North Fork Sage Creek Proposal Section 3.4.1. How were outliers determined? Please provide an explanation for why the benthic data were "inconsistent" and why it is reasonable to exclude the outliers and elevated benthic data from the analysis.

Brown Trout Whole-Body Element. EPA used a whole-body value of 13.2 mg/kg based on a directly-measured EC10. Please provide a rationale for using the geomean of a CF-derived whole-body element as opposed to a directly measured value.

Representativeness of Juvenile Tissue Values. Please describe how BAFs based on data from juvenile fish would derive criterion elements appropriately protective of adult fish, considering the change in foraging behavior to increasingly piscivorous in adult fish.

Crow Creek Proposal: Please provide additional rationale to describe how changing the tissue values for Crow Creek and its upstream tributaries, without recalculating the water column value, is protective.

Crow Creek Proposal, pg. 25 states that "Despite low selenium concentrations in water, tissue concentrations occasionally exceed the brown trout tissue threshold…" Is there an explanation for why this might be occurring? Please provide additional information to demonstrate that the water column value is protective despite the occasional exceedance of tissue thresholds.

Updated Rule Language

287. SITE-SPECIFIC AQUATIC LIFE CRITERIA FOR SELENIUM.

Site-specific water column values (30-day average) are based on dissolved total selenium in water and are derived using a performance-based approach from fish tissue values via either the mechanistic modeling or empirical bioaccumulation factor (BAF) method in Aquatic Life Ambient Water Quality Criterion for Selenium – Freshwater, EPA-822-R-16-006, Appendix K: Translation of a Selenium Fish Tissue Criterion Element to a Site-Specific Water Column Value (June 2016). The following footnotes apply to the tables in this section. ~~(3-31-22)~~

1. Egg-ovary supersedes any whole-body, muscle, or water column element when fish egg-ovary concentrations are measured. Single measurement of an average or composite sample of at least five (5) individuals of the same species. Not to be exceeded; DEQ will evaluate all representative egg-ovary data to determine compliance with this criterion element.
2. Fish whole-body or muscle tissue supersedes water column element when both fish tissue and water concentrations are measured. Single measurement of an average or composite sample of at least five (5) individuals of the same species where the smallest individual is no less than seventy-five percent (75%) of the total length (size) of the largest individual. Not to be exceeded; DEQ will evaluate all representative whole-body or muscle data to determine compliance with this criterion element.
3. Water column values are derived using the empirical BAF method. For comparative purposes only, the example value displayed in this table represents the lotic water column value for Sheep Creek based on the average BAF for Cutthroat Trout among all sampling locations and years.
4. Lotic Water Column Equation= $\frac{Tissue_{criterion}}{BAF}$ where Tissue criterion is the fish tissue element (whole-body), and BAF is the bioaccumulation factor derived by dividing site-specific field-collected samples of fish tissue (whole-body) by site-specific field-collected samples of water.
5. Water column values are the applicable criterion element in the absence of steady-state condition fish tissue data. In fishless waters, surface water from the fishless waters and fish tissue from the nearest downstream waters are used for bioaccumulation modeling. Fish tissue supersedes any site-specific water column values when fish are sampled downstream of fishless waters.

Site- Specific Aquatic Life Criteria for Selenium (IDAPA 58.01.02.287.01)

01. Subsection of Blackfoot Subbasin. Blackfoot River - confluence of Lanes and Diamond Creeks to Blackfoot Reservoir (unit US-10), and all tributaries thereof. Site-specific egg-ovary, whole-body, and muscle criterion elements for these water bodies are set out in the following table. The lentic and short-term exposure water column criterion elements set out in Subsection 210.01, table footnote l., are also applicable to the water bodies identified in this subsection.

Chronic			
Egg-Ovary (mg/kg dw)	**Fish Tissue (mg/kg dw)**		**Water Column (µg/L)**
Egg-Ovary	Whole-Body	Muscle	Water Lotic
24.5[1]	~~12.5~~[2]17.1[2]	12.8[2]	11.9[3,4,5]
mg/kg dw – milligrams per kilogram dry weight, µg/L – micrograms per liter			

Site- Specific Aquatic Life Criteria for Selenium (IDAPA 58.01.02.287.02)

02. **Subsection of Bear Lake Subbasin**. Georgetown Creek - source to mouth (unit B-22), and all tributaries thereof. Site-specific egg-ovary, whole-body, and muscle criterion elements for these water bodies are set out in the following table. The lentic and short-term water column criterion elements set out in Subsection 210.01, table footnote l**.,** are also applicable to the water bodies identified in this subsection.

Chronic			
Egg-Ovary (mg/kg dw)	**Fish Tissue (mg/kg dw)**		**Water Column (µg/L)**
Egg-Ovary	Whole-Body	Muscle	Water Lotic
21.0[1]	~~12.5~~[2] 13.9[2]	12.8[2]	3.8[3,4,5]
mg/kg dw – milligrams per kilogram dry weight, µg/L – micrograms per liter			

Site- Specific Aquatic Life Criteria for Selenium (IDAPA 58.01.02.287.XX)- Option 1

xx. **Subsection of Salt Subbasin — North Fork Sage Creek**. North Fork Sage Creek – source to confluence with Sage Creek ~~and tributaries~~ . Site-specific egg-ovary and whole-body criterion elements for these water bodies are set out in the following table. The ~~muscle~~, lentic water column, and short-term water column criterion elements set out in Subsection 210.01., table footnote I**.**, are also applicable to the water bodies identified in this subsection.

Chronic		
Egg-Ovary (mg/kg dw)	**Fish Tissue (mg/kg dw)**	**Water Column (µg/L)**
Egg-Ovary	Whole-Body	Water Lotic
20.5[1]	13.6[2]	3.1[2]
mg/kg dw – milligrams per kilogram dry weight, µg/L – micrograms per liter		

Site- Specific Aquatic Life Criteria for Selenium (IDAPA 58.01.02.287.XX)

xx. **Subsection of Salt Subbasin — Crow Creek**. Upper Crow Creek – Upstream of Sage Creek confluence and ~~tributaries~~ Deer Creek tributary–Source to confluence with Crow Creek. Site-specific egg-ovary and whole-body criterion elements for these water bodies are set out in the following table. The ~~muscle~~, lentic water column, and short-term water column criterion elements set out in Subsection 210.01., table footnote l**.,** are also applicable to the water bodies identified in this subsection.

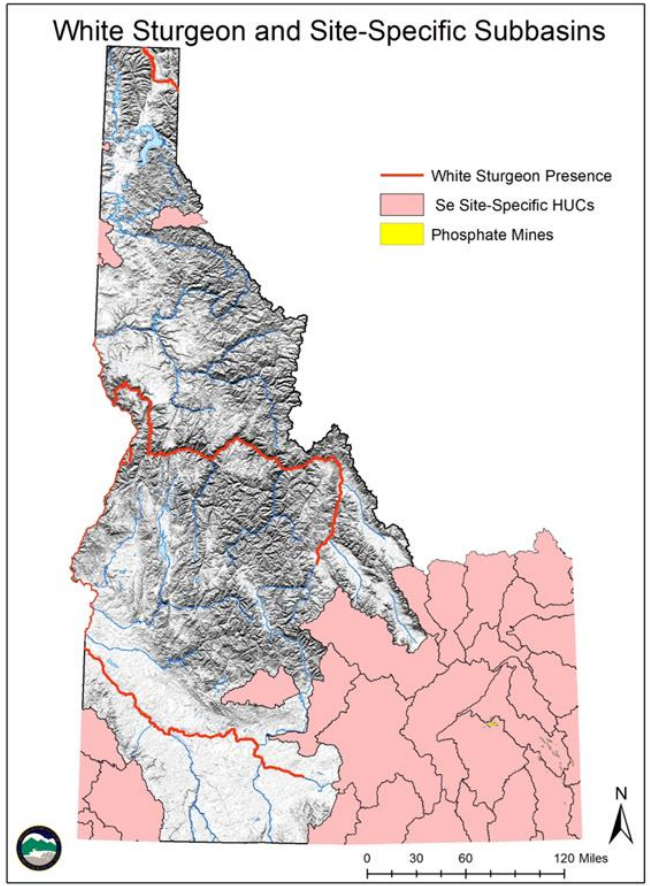
Chronic		
Egg-Ovary (mg/kg dw)	**Fish Tissue (mg/kg dw)**	**Water Column (µg/L)**
Egg-Ovary	Whole-Body	Water Lotic
20.5[1]	13.6[2]	3.1[2]
mg/kg dw – milligrams per kilogram dry weight, µg/L – micrograms per liter		

Site- Specific Aquatic Life Criteria for Selenium (IDAPA 58.01.02.287.XX)

04. Subsection of Salt Subbasin — Crow Creek. Lower Crow Creek – Downstream of Sage Creek confluence to Wyoming state line (US-8). Site-specific egg-ovary and whole-body criterion elements for these water bodies are set out in the following table. The ~~muscle~~, lentic water column, and short-term water column criterion elements set out in Subsection 210.01., table footnote l.

Chronic		
Egg-Ovary (mg/kg dw)	**Fish Tissue (mg/kg dw)**	**Water Column (µg/L)**
Egg-Ovary	Whole-Body	Water Lotic
20.5[1]	~~12.5[2]~~ 13.6[2]	~~4.2[2]~~ 8.8[2]
mg/kg dw – milligrams per kilogram dry weight, µg/L – micrograms per liter		

Summary of criterion comparisons



Selenium Criterion	Chronic				Short-Term
	Fish Tissue (mg/kg dw)		Water Column (µg/L) (30-Day Average)		Water Column (µg/L)
	Egg-Ovary	Whole Body	Water (Lentic)	Water (Lotic)	Water
Statewide	15.1	8.5	1.5	3.1	Intermittent exposure equation
Site-Specific Waters	19.0	9.5	1.5	3.1	Intermittent exposure equation
Upper Blackfoot River	24.5	~~12.5~~ 17.2	1.5	$\frac{Tissue_{criterion}}{BAF}$	Intermittent exposure equation
Bear Lake	21.0	~~12.5~~ 13.9	1.5	$\frac{Tissue_{criterion}}{BAF}$	Intermittent exposure equation
North Fork Sage	20.5	13.6	1.5	3.94	Intermittent exposure equation
Sage Creek	20.5	13.6	1.5	16.7	Intermittent exposure equation
Upper Crow	20.5	13.6	1.5	3.1	Intermittent exposure equation
Lower Crow Creek	20.5	~~12.5~~ 13.6	1.5	~~4.2~~ 8.8	Intermittent exposure equation

Questions?

Thank you

STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY