BEFORE THE DEPARTMENT OF ENVIRONMENTAL QUALITY
OF THE STATE OF MONTANA

In the matter of ARM 17.30.602(32) and 17.30.632(7)(a) pertaining to the definition of "steady state" and site-specific water column water quality criteria	))))	PETITION FOR RULEMAKING

INTRODUCTION

Pursuant to Mont. Code Ann. § 2-4-315, the Lincoln County Board of County Commissioners ("Lincoln County") submits this Petition for Rulemaking to DEQ in light of new information and data that changes the water column water quality criteria in the water quality standard for Lake Koocanusa under ARM 17.30.632(7)(a) and the definition of "steady state" under ARM 17.30.602(32).[1]

I. Identity of Petitioner Lincoln County

The Board of County Commissioners of Lincoln County ("Lincoln County")
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II. Interests of Petitioner Lincoln County

Lincoln County has a cognizable interest in ensuring fair, balanced, and scientifically defensible water quality standards in Lake Koocanusa. Lake Koocanusa is located in Lincoln County. Lincoln County is a political subdivision of the State of Montana. The Board of County Commissioners of Lincoln County is granted all legislative, executive, and administrative

[1] On April 19, 2022, the Montana Board of Environmental Review decided that ARM 17.30.632(7)(a) violated § 75-5-203, MCA. Notwithstanding, this Petition refers to the water column water quality criteria by reference to ARM 17.30.632(7)(a) for the sake of clarity without regard to its current validity or invalidity.

powers and duties of the local government not specifically reserved by law or ordinance to other elected officials. § 7-3-401, MCA. The Board of County Commissioners has jurisdiction and power to represent the County and has care of the County property and the management of the business and concerns of the County and to perform all other acts and functions which may be necessary to the full discharge of the duties of the chief executive authority of the county government. § 7-5-2101, MCA. Lincoln County is committed to both environmental stewardship and fostering a business-friendly climate. Lincoln County believes these objectives are not mutually exclusive and can be achieved through balanced, science-based regulation.

Lincoln County is comprised of approximately 75% federal and state land, limiting its tax base and local control over regulatory decisions. The County depends on the viability of local industries—particularly mining, timber, ranching, and agriculture—for economic stability and job creation. However, the industries that historically employed many Lincoln County residents have declined sharply, resulting in the loss of quality middle-class jobs while housing costs and other living expenses have simultaneously increased substantially. Overly restrictive environmental regulation compounds these economic challenges by deterring new business investment in the region and placing additional burdens on existing industries. Lake Koocanusa, treasured for its economic and recreational value, is at the center of this regulatory concern.

For example, mining, timber, ranching, and agriculture all involve some component of land disturbing activities that may be regulated through the Clean Water Act ("CWA") and affected by water quality standards in Lake Koocanusa. Any National Pollutant Discharge Elimination System ("NPDES") Permit issued to one of these industries may require strict water quality based effluent limitations rather than the more flexible and less expensive technology based effluent limitations. 33 U.S.C. § 1311(b)(1)(c)-(d). Even without a permitted point source activity, the CWA requires states to manage non-point source discharges that may cause or contribute to violations of state water quality standards. 33 U.S.C. § 1329(a)(1). The state non-point source management plan often results in imposing strict controls on the industries that support Lincoln County's economy as a result of water quality standards in receiving waters. *See e.g.* 2017 Montana Nonpoint Source Management Plan, p. 1-7.

These regulatory mechanisms to implement water quality standards in Lake Koocanusa effect Lincoln County's ability to meet its policy objectives. Accordingly, Lincoln County has a cognizable interest in a fair, balanced, and scientifically defensible water quality standard for Lake Koocanusa.

III. Support for Petition and Reason for the Proposed Action

A. Support for Amendment of 17.30.632(7)(a)

Since DEQ's initial rulemaking to develop a site-specific selenium water quality standard for Lake Koocanusa, the U.S. Environmental Protection Agency ("EPA") has published critical

new technical support and implementation guidance[2] [3], and new fish egg data from Lake Koocanusa confirm that tissue standards are not exceeded. To have the most robust, up-to-date and scientifically-defensible standard, this new information must be accounted for in a new water column water quality criteria for Lake Koocanusa. Copies of the cited reference materials are enclosed with this Petition for Rulemaking as Appendices A-P and incorporated herein by this reference.

The EPA[4] identifies two instances where it recommends that a state develop a site-specific water column criterion element for selenium. The first is for fishless waters (not applicable to Lake Koocanusa); and the second is when ambient water column selenium concentrations are meeting the national CWA section 304(a) recommended water column criterion, but the fish tissue concentrations are greater than the national recommended fish tissue criterion (also not applicable to Lake Koocanusa, as explained below). In such an instance, the elevated fish tissue concentrations may indicate an impact on the aquatic system and a water column criterion element lower than the national CWA section 304(a) recommended water column criterion element is needed to protect aquatic life. Based upon new data and EPA technical guidance, neither of these instances are applicable to Lake Koocanusa. Therefore, a water column water quality criteria lower than the CWA section 304(a) national criteria is not recommended by EPA or appropriate in this instance.

In 2024, the EPA issued technical guidance for fish tissue monitoring and data acceptability when implementing the 2016 selenium criterion. The fish tissue monitoring guidance document published in 2024 underscores the importance of sampling mature eggs for comparison against the national criteria[5] and that the egg/ovary criterion element was derived directly from toxicity data using mature eggs and served as the basis for deriving all the other criterion elements[6] [7]. The 2024 EPA fish tissue monitoring guidance document confirms that egg/ovary tissue as defined within the national criterion refers to "mature eggs, pre-spawn ovary tissue that contains mature eggs, or both"; and that ovary tissue sampled from a female that is not gravid[8] will not be representative of selenium concentrations. Recent peer reviewed literature[9] confirms this approach (*i.e.,* that it is imperative to perform analysis of mature eggs to allow for comparisons with egg selenium guidelines and/or criteria because selenium toxicity thresholds are established based on concentrations measured in mature eggs).

The fish egg/ovary data available to DEQ during rulemaking were not of gravid females. The Montana Department of Fish, Wildlife and Parks has confirmed that they never sampled a

[2] United States Environmental Protection Agency. 2024. Technical Support for Adopting and Implementing the EPA's 2016 Selenium Criterion in Water Quality Standards. EPA 820-R-24-001. April 2024.
[3] *Id.*
[4] *Id.*
[5] *Id.*
[6] United States Environmental Protection Agency. 2016. Aquatic Life Ambient Water Quality Criterion for Selenium – Freshwater 2016. EPA 822-R-16-006. June 2016.
[7] United States Environmental Protection Agency. 2021. 2021 Revision to: Aquatic Life Ambient Water Quality Criterion for Selenium – Freshwater 2016. 21-006. August 2021.
[8] Gravid – a female fish that is distended with or full of eggs.
[9] Palace, V., S. Graves, and J. Brandt. 2024. Guidance on assessing the potential impacts of selenium in freshwater ecosystems. Integrated Environmental Assessment and Management 2024:1–16 DOI: 10.1002/ieam.4969. Accepted: 21 May 2024.

gravid fish from Lake Koocanusa[10]; and the United States Geological Survey has also confirmed that fish reproductive tissue was a data gap[11] during model development in the initial rulemaking.

Review of egg/ovary data available at the time of rulemaking identifies that although egg/ovary data collected were collected within established spawning windows for Lake Koocanusa[12], samples were not collected consistent with DEQ's fish tissue sampling standard operating procedure[13] or the 2018 fish tissue quality assurance project plan for Lake Koocanusa.[14] Consistent with EPA 2024 fish tissue monitoring guidance, ovary data that is not collected from a gravid fish will not be representative of selenium concentrations and should not be compared against the national criterion. However, since the initial rulemaking, 50 individual fish egg samples have been collected from gravid females from Lake Koocanusa and are publicly available from the Water Quality Portal.[15]

Selenium fish egg concentrations measured from Lake Koocanusa in these 50 new individual fish tissue samples are well below the egg/ovary tissue standard of 15.1 mg/kg dw, see below figure. Average selenium egg concentrations in redside shiner are equal to 7.6 mg/kg dw (sample year = 2019; n = 14), and average selenium egg concentrations in northern pikeminnow are equal to 3.7 mg/kg dw (sample years = 2019 and 2022; n = 36). These new data confirm that average egg selenium concentrations are well below the tissue standard of 15.1 mg/kg dw.[16]

In addition to measured egg data, there are new peer reviewed models that can be used to estimate mature egg concentrations using fish muscle tissue data.[17] These models offer the ability to use the over 2,700 individual fish tissue muscle samples collected from Lake Koocanusa since 2002 to estimate egg concentrations and compare against the egg/ovary tissue

[10] Selch, Trevor. 2022. Oral Testimony provided at the February 2022 Water Policy Interim Committee HJ37 Work Group Meeting.
[11] Kilpatrick, John. 2022. Oral Testimony provided at the February 2022 Water Policy Interim Committee HJ37 Work Group Meeting.
[12] Montana Department of Environmental Quality. 2024. Selenium Assessment Method for Lake Koocanusa and the Kootenai River in Montana - Public Comment Draft. WQDMASWQA-01, Version 1. July 2024.
[13] Montana Department of Environmental Quality. 2015. Fish Tissue Sampling Standard Operating Procedure. WQPBWQS-29.
[14] Montana Fish, Wildlife & Parks and Montana Department of Environmental Quality. 2018. FWP/DEQ Fish Tissue Quality Assurance Project Plan for Lake Koocanusa. WQSMQAP-02. April 30, 2018.
[15] The Water Quality Portal (WQP) integrates publicly available water quality data from the USGS National Water Information System (NWIS) and the EPA Water Quality Exchange (WQX) Data Warehouse. https://www.waterqualitydata.us/
[16] At the time of rulemaking, DEQ believed that egg/ovary tissue data were greater than the tissue criterion of 15.1 milligrams per kilograms dry weight basis (mg/kg dw). In 2020, DEQ identified three redside shiner egg/ovary samples as exceeding the EPA 304(a) criterion of 15.1 mg/kg dw along with one peamouth chub sample. In 2022, DEQ stated that it relied on data from nine (9) individual fish spanning three (3) species with egg/ovary selenium concentrations greater than the tissue criterion. The new data and guidance documents confirm that these conclusions are inaccurate.
[17] Detering C, K.V. Brix, M. Adzic, B.A. Fulton, and D.K. DeForest. 2025. Relationships in selenium concentrations among fish tissues to support selenium assessments and regulations. Environmental Toxicology and Chemistry. DOI: 10.1093/etojnl.vgaf045. Advanced access publication February 27, 2025.

criterion element. Consistent with DEQ's 2020 findings, fish tissue selenium concentrations in muscles and whole-body continue to remain below their respective fish tissue criterion elements.

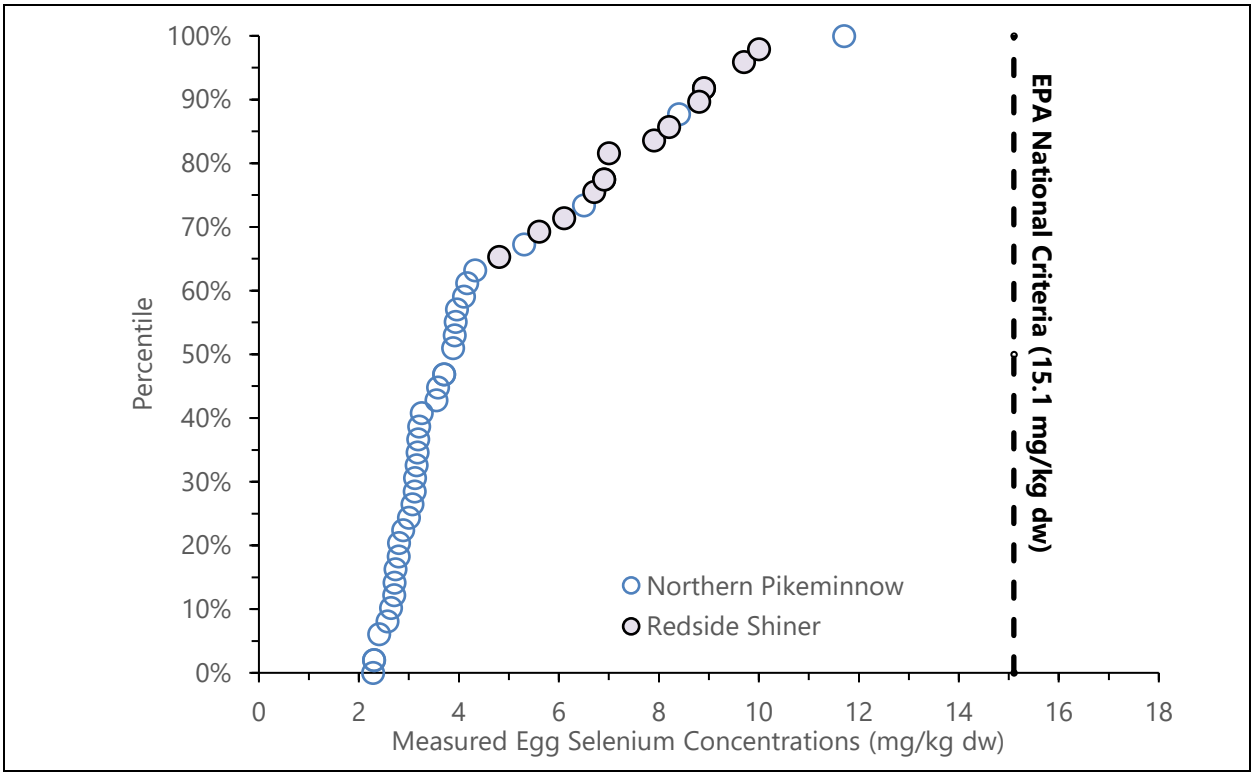

Figure. Measured Egg Selenium Concentrations in Lake Koocanusa Relative to the National Criteria of 15.1 mg/kg dw.

In summary, there are new data that confirm fish tissue selenium concentrations including egg/ovary data are below the national recommended fish tissue criteria elements, while ambient water column selenium concentrations also continue to be below the national CWA section 304(a) recommended water column criterion of 1.5 µg/L. As a result, and consistent with the 2024 EPA guidance,[18] there is no need to develop a site-specific water column criterion element more stringent than the recommended national criterion. A Water Column Standard of 1.5 µg/L for Lake Koocanusa is protective of aquatic resources and can be confirmed by using the empirical bioaccumulation factor approach for deriving a site-specific water column criterion element.

Predicted protective water column values for Lake Koocanusa using empirical data and the bioaccumulation factor approach are all greater than the national CWA section 304(a) recommended water column criterion of 1.5 µg/L, see below figure.

[18] EPA. 2024. Technical Support for Adopting and Implementing the EPA's 2016 Selenium Criterion in Water Quality Standards. EPA 820-R-24-001. April 2024.

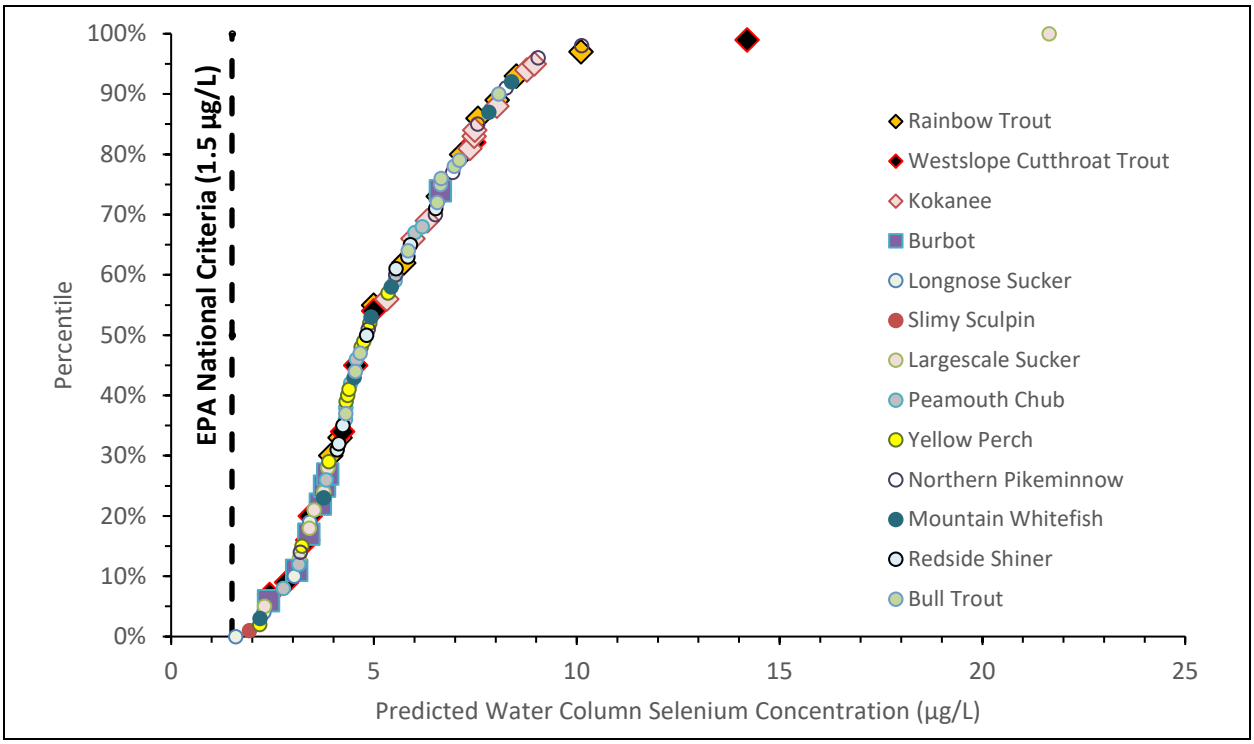

Figure. Predicted Protective Water Column Values for Lake Koocanusa using the Empirical Bioaccumulation Factor Approach.

Note: The minimum calculated protective water column value using the empirical bioaccumulation factor approach is 1.6 µg/L.

B. Support for Amendment of 17.30.602(32)

At the time of initial rulemaking, the 2016 EPA criterion document did not include a definition of "steady state," but did outline that fish tissue elements of the selenium criterion supersede water column elements under steady state conditions because the selenium concentrations in fish tissues are a more sensitive and reliable indicator of the negative effects of selenium in aquatic life.[19] This was further clarified by Ms. Judy Bloom of EPA Region 8 to DEQ, noting that the language from the EPA 2016 criterion document was intended to address the scenario where fish tissue data are not exceeding respective criterion elements, but the water column data are exceeding that element.[20]

During the initial rulemaking and as outlined in Part A above, DEQ was under the impression (based on the data available to it at the time) that fish tissue egg/ovary data exceeded the tissue criterion element, while the other tissue elements and the water column data did not.

[19] EPA. 2021. 2021 Revision to: Aquatic Life Ambient Water Quality Criterion for Selenium – Freshwater 2016. 21-006. August 2021.

[20] Judy Bloom, Manager, Clean Water Branch. U.S. Environmental Protection Agency, Region 8. February 25, 2021. Ref: 8WP-CWQ. Letter to Steven Ruffatto, Chair, Montana Board of Environmental Review, Montana Department of Environmental Quality.

Under that scenario, EPA accepted DEQ's definition of steady-state. Since then, EPA has provided further guidance and a definition for steady state.

As outlined within 2024 EPA guidance documents, for the purposes of the national CWA section 304(a) recommended selenium criterion, EPA refers to steady-state conditions "where sufficient time has passed after the introduction of a new or increased input of selenium into a waterbody or watershed of a waterbody such that fish tissue selenium concentrations are no longer increasing."[21] [22]

EPA guidance further clarifies that "new inputs" as outlined within the 2016 criterion document are "both new and increased inputs of selenium" and refers "to the release of a substantial amount of additional selenium from either anthropogenic point or nonpoint sources." New or increased selenium inputs "do not refer to seasonal variability of selenium that occurs naturally within a system (e.g., spring run-off events or precipitation-driven pulses) or de minimis discharges. Furthermore, the EPA notes that "if selenium inputs are decreasing in a waterbody, the hierarchy of the criterion should apply, and fish tissue criterion elements should take precedence for CWA implementation. Therefore, the EPA recommends using the fish tissue criterion elements for the CWA implementation of WQC based on the national CWA section 304(a) recommended criterion when selenium inputs to a waterbody or the watershed of a waterbody are decreasing."

The inclusion of "or changing" language with the definition of steady state as set out in ARM 17.30.602(32) does not meet the intent of the 2016 EPA criterion document and implementation of the recommended selenium criterion under the CWA. The "or changing" language means both decreasing and increasing, and therefore should be updated to only state "or increasing" to make it consistent with the national criterion and 2024 EPA guidance.

Further, selenium concentrations at the mouth of Elk River are neither new nor increasing.[23] [24] This can be demonstrated by applying the Weighted Regression on Time, Discharge and Season model using the EGRET (version 3.0.7) package, as described in Storb *et al.* (2023) with current (*i.e.*, post-2022) flow and selenium concentration data, see below figure.

[21] EPA. 2024. Technical Support for Adopting and Implementing the EPA's 2016 Selenium Criterion in Water Quality Standards. EPA 820-R-24-001. April 2024.
[22] EPA. 2024. Frequently Asked Questions: Implementing Water Quality Standards Based on the EPA's 2016 Selenium Criterion in Clean Water Act Section 402 National Pollutant Discharge Elimination System Permits. EPA-820-R-24-002. April 2024.
[23] Storb, Meryl B., Bussell, Ashley M., Caldwell Eldridge, Sara L., Hirsch, Robert M., and Schmidt, Travis S. 2023. Growth of Coal Mining Operations in the Elk River Valley (Canada) Linked to Increasing Solute Transport of Se, NO_3^-, and SO_4^{2-} into the Transboundary Koocanusa Reservoir (USA–Canada). Environ. Sci. Technol. 2023, 57, 45, 17465–17480.
[24] Terry, Kyle. 2017. Selenium Loading to Lake Koocanusa. Technical memorandum submitted to Mike Sokal of BC Ministry of Environment and Climate Change Strategy. October 20, 2017.

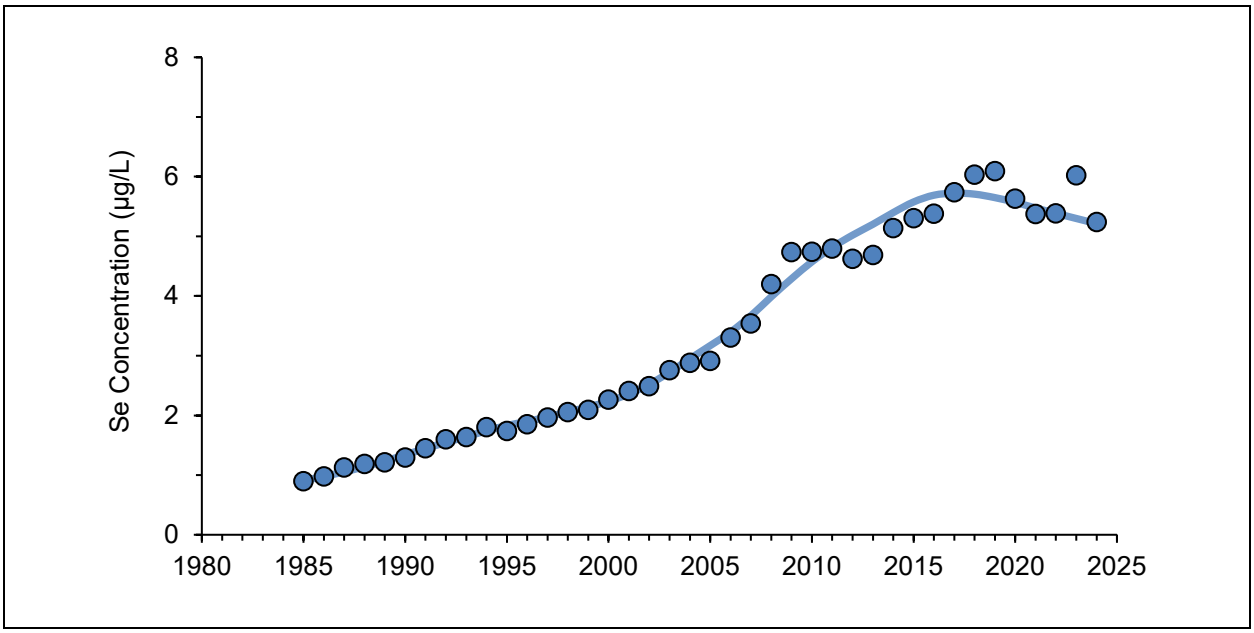

Figure. Flow-normalized selenium concentration trends at the Elk River through 2024.

Recent water quality data and trend analyses using publicly available models (Storb *et al.*, 2023) confirm that selenium concentrations from sources into Lake Koocanusa are decreasing and, consistent with EPA 2024 guidance, fish tissue criterion elements should take precedence for CWA implementation. As a result, the scenario contemplated by DEQ in the initial rulemaking for whether Lake Koocanusa was in steady-state is no longer applicable.

C. Summary

In sum, new data confirm fish tissue selenium concentrations including egg/ovary data are below the national recommended fish tissue criteria elements; while ambient water column selenium concentrations also continue to be below the national CWA section 304(a) recommended water column criterion of 1.5 µg/L. As a result, and consistent with the 2024 EPA guidance,[25] a site-specific water column criterion element more stringent than the recommended national criterion is not necessary to protect aquatic resources. A water column water quality criteria more stringent than the recommended national criterion frustrates Lincoln County's ability to meet its policy objectives. A Water Column Standard of 1.5 µg/L for Lake Koocanusa is protective of aquatic resources and can be confirmed by using the empirical bioaccumulation factor approach for deriving a site-specific water column criterion element.

Furthermore, new guidance from EPA supports an amendment of the definition of "steady state" due to the trend of decreasing selenium concentrations from sources into Lake Koocanusa. An amendment concluding that Lake Koocanusa met steady-state conditions would result in fish tissue elements of the selenium criterion superseding water column elements

[25] EPA. 2024. Technical Support for Adopting and Implementing the EPA's 2016 Selenium Criterion in Water Quality Standards. EPA 820-R-24-001. April 2024.

because the selenium concentrations in fish tissues are a more sensitive and reliable indicator of the negative effects of selenium in aquatic life[26] [27].

IV. Proposed Rule

The proposed rules are as follows (new matter underlined and deleted matter interlined):

ARM 17.30.602 DEFINITIONS

(32) "Steady state" means, for the purposes of ARM 17.30.632, conditions whereby there are no activities resulting in new~~,~~ or increasing~~, or changing~~ selenium loads to the lake or river aquatic ecosystem, and selenium concentrations in fish living in the aquatic ecosystem have stabilized.

ARM 17.30.632 SELENIUM STANDARDS FOR LAKE KOOCANUSA AND THE KOOTENAI RIVER

(7) Water column standards are the numeric standards for total dissolved selenium computed as a 30-day average, and shall not be exceeded more than once in 3 years, on average.

(a) Lake Koocanusa from the US-Canada international boundary to the Libby Dam: 1.5 ~~0.8~~ µg/L.

(b) Kootenai River mainstem from the outflow below the Libby Dam to the Montana-Idaho border: 3.1 µg/L.

CONCLUSION

Lincoln County respectfully requests DEQ to Grant its Petition for Rulemaking to account for new data and guidance that changes the outcome for the water column water quality criteria in ARM 17.30.632(7)(a) and the definition of steady state in ARM 17.30.602(32).

Dated this 2nd day of June, 2025

Aimee Hawkaluk [signature]

Aimee Hawkaluk [name]

On behalf of the Board of County Commissioners of Lincoln County, Montana

[26] EPA. 2021. 2021 Revision to: Aquatic Life Ambient Water Quality Criterion for Selenium – Freshwater 2016. 21-006. August 2021.

[27] EPA. 2016. Aquatic Life Ambient Water Quality Criterion for Selenium – Freshwater 2016. EPA 822-R-16-006. June 2016.