

RESPONSE TO COMMENTS

STRINGENCY FINDINGS FOR THE SITE-SPECIFIC WATER COLUMN SELENIUM STANDARD FOR LAKE KOOCANUSA, MT

Public comments were received between April 4 and May 4, 2022, by the Montana Department of Environmental Quality (DEQ) on the draft written stringency findings supporting the site-specific water column water selenium standard for Lake Koocanusa, Montana. A public hearing was held on April 26, 2022 and oral testimony was taken on the draft findings. The department received nearly 150 comments. Summarized here are the substantive comments related to the draft stringency findings received or postmarked by May 4, 2022. The following substantive comments were considered by DEQ in finalizing the stringency findings. This response to comment document will supplement the written findings in support of ARM 17.30.632(7)(a) and will be maintained by DEQ in the rulemaking file.

COMMENT NO. 1: Over 135 comments were received in support of the current Lake Koocanusa dissolved selenium standard.

RESPONSE: The department acknowledges the comments.

COMMENT NO. 2: Over 70 comments were received in support of the written stringency findings and urged the department to adopt and finalize the findings.

RESPONSE: The department acknowledges the comments.

COMMENT NO. 3: I would like to ask that DEQ permanently publish the written findings.

RESPONSE: The department acknowledges the comment and will maintain and make the final stringency findings available for public inspection upon request pursuant to the Attorney General's Model Rule ARM 1.3.233 (adopted by the department pursuant to ARM 17.4.101(1)). Additionally, the proposed stringency findings, public comments on the proposed stringency findings, the department's responses to public comments on the proposed stringency findings, and the final stringency findings will be maintained in the department rulemaking file for ARM 17.30.632(7)(a).

COMMENT NO. 4: DEQ fully substantiates that the rule is necessary to protect aquatic life from the toxic effects of selenium accumulation in the water column in Section 2.0 based on citations of the administrative record and relevant peer reviewed literature.

RESPONSE: The department acknowledges the comment.

COMMENT NO. 5: DEQ fails to prove that the new standard can mitigate harm to the public health or environment.

RESPONSE: The department disagrees with the comment and references the entirety of the rulemaking record as evidence to the contrary. There is substantial scientific justification in the rulemaking record supporting adoption of the Lake Koochanusa selenium standard including peer reviewed scientific studies and the expertise of the most highly regarded selenium scientists in the world. The Lake Koochanusa water column standard is necessary to protect aquatic life from the toxic effects of selenium. The final model selected by the department utilizes the EPA recommended whole body guideline of 8.5 mg/kg, the trophic fish model with a 100% aquatic insect diet, 60% bioavailability, and the Kd selected at the 75th percentile which results in a protective water column value of 0.8 µg/L (RR_000127). This model was selected by the department to protect all fish including bull trout and burbot that may be consuming prey fish with a 100% aquatic insect diet (RR_004060; RR_004065). The department reviewed a full range of model results provided in an interactive and peer-reviewed spreadsheet and made a risk decision to select at the 75th percentile of the Kd distribution resulting in a protective dissolved selenium concentration of 0.8 µg/L (RR_004065). This level of protection meets the protection goals defined for Lake Koochanusa (RR_002354). The standards are consistent with the best available science for selenium toxicity and will protect the selenium-sensitive aquatic life in this watershed (RR_000069).

At the time of rulemaking, water column concentrations were near 1 µg/L in Lake Koochanusa and there were 9 individual fish found with egg/ovary fish tissue concentrations greater than 15.1 mg/kg dw spanning three species. Egg/ovary tissue data through 2020 for the MT portion of Lake Koochanusa show selenium levels above 15.1 milligrams per kilogram (mg/kg) in 19 individual fish spanning 5 species with egg/ovary tissue values recorded between 15.1 and 38.8 mg/kg. Additional egg/ovary sampling will take place in 2022. The downstream Kootenai River in Idaho has been listed impaired due to selenium found at high levels in fish tissue. Water quality standards are set to protect beneficial uses, prevent impacts, and protect downstream uses. The Lake Koochanusa water column standard can mitigate harm to aquatic life and protect downstream water quality.

COMMENT NO. 6: The proposed standard does not protect public health.

RESPONSE: The stringency finding at 75-5-203(2)(a), MCA requires: “the proposed state standard or requirement protects public health or the environment of the state;” (underlined and bolded for emphasis). As detailed in DEQ’s Response to Comment 5 above, the 0.8 µg/L water column standard is necessary to protect the aquatic life beneficial use for Lake Koochanusa.

COMMENT NO. 7: There is no evidence in the record that the proposed standard protects public health or the environment.

RESPONSE: The department disagrees with the comment. See the department’s responses to Comment Nos. 5 and 6 above.

COMMENT NO. 8: As DEQ notes in the Draft Finding, the 2016 EPA Guideline provides ample protection for public health and the environment from toxicity related to excess selenium. Contrary to the Draft Finding, the 2016 EPA Guideline *does not* state that a protective selenium level is “highly dependent on site-specific factors.” Draft Finding, p. 1 (citing RR_000310). Instead, the 2016 EPA Guideline recognizes that the bioaccumulative properties of selenium cause the most deleterious effects on aquatic organisms, and “in harmony with the recommendations of expert panels” in 1998 and 2010 and “with peer review and public comments” in 2004, 2014 and 2015,

EPA "developed a chronic criterion reflective of the reproductive effects of selenium concentrations on fish species." RR_000310. Therefore, EPA acknowledged the bioaccumulation issue and designed the Guideline to address it. Further, EPA developed the Guideline to be protective of white sturgeon, specifically noting the "population listed as endangered in the Kootenai River in Idaho and Montana." RR_000351. Therefore, the 2016 EPA Guideline is protective of public health and the environment in Montana's Lake Koocanusa.

RESPONSE: Please see responses to Comment Nos. 5 and 6 above. DEQ agrees the citation to RR_000310 was in error and the location in the record is corrected to RR_000317 where EPA states "...the behavior and toxicity of selenium in aquatic systems are highly dependent upon site-specific factors, including food web structure and hydrology."

COMMENT NO. 9: DEQ has focused on what it now knows about the economy of Lincoln County, but it has failed to properly analyze how the county could grow and the potential for future development in the area.

RESPONSE: The stringency finding at 75-5-203(3), MCA requires: "The written findings must include information from the hearing record regarding costs to the regulated community that are directly attributable to the proposed standard". The department has addressed this in the draft written findings. See page 5 of the draft findings, which states that there are only two main anthropogenic activities known to cause increased mobilization of selenium to the environment. Neither of those activities are anticipated to occur around Lake Koocanusa nor is it likely they would require a MPDES permit limiting discharges of selenium to Lake Koocanusa. Any large development activities are already subject to best management practices (BMPs) as addressed within the written findings document. There is no increased cost to the regulated community directly attributed to the Lake Koocanusa selenium standard. The regulated community is within Montana because this is a site-specific water column standard for Lake Koocanusa, Montana that only applies within Montana's borders. There is no evidence in the record to suggest this site-specific standard will result in increased treatment costs for Montana regulated owners or operators of land disturbing activities or facilities that discharge to Lake Koocanusa.

COMMENT NO. 10: I have concern about the future economic impacts that this will have on a number of economic activities for the future, whether that might be some kind of mining, a rock quarry, gravel pit, or perhaps even logging jobs.

RESPONSE: See Response to Comment No. 9. The department understands this concern and emphasizes that the land disturbing activities described in this comment are already subject to best management practices (BMPs) required under applicable General MPDES Permits such as the General Permit for stormwater discharges associated with construction activity (MTR100000), the Multi-Sector General Permit for storm water discharges associated with industrial activity (MTR000000), or the General Permit for sand and gravel operations (MTG490000).

COMMENT NO. 11: We support the conclusions reached by the agency that the rule is necessary to protect the environment of Montana, is achievable under current technology, and will not have substantial economic burden on the regulated community.

RESPONSE: The department acknowledges the comment.

COMMENT NO. 12: The administrative record substantially supports meeting both subsections in 75-5-203(2), MCA.

RESPONSE: The department acknowledges the comment.

COMMENT NO. 13: We questioned whether such a low standard for an essential nutrient that is naturally occurring is protective or whether it could require treatment beyond what is feasible and beyond natural-occurring levels. DEQ's draft written findings do not answer our question.

RESPONSE: The department's written findings present data that show very low background levels of selenium in Montana. Selenium levels in the tributaries to Lake Kooconusa show results far below the standard of 0.8 µg/L. Therefore, there is no evidence that any new activity that may occur on Lake Kooconusa would require any substantial treatment technology or associated cost.

COMMENT NO. 14: DEQ's draft finding refers to some EPA-listed technologies, including reverse osmosis, iron reduction/precipitation, active biological treatment, aerobic wetlands, and/or biochemical reactors or anaerobic wetlands. What levels of selenium are those technologies able to achieve? Can they reach 0.8 or the even lower trigger limit of 0.02?

RESPONSE: Several selenium treatment technologies listed in the written findings are able to reduce selenium levels by 90-95%. Whether 0.8 µg/L can be achieved would depend on the starting concentrations. No facility or activity requiring an MPDES permit limit with a water quality-based effluent limit for selenium is proposed or anticipated to discharge to Lake Kooconusa, MT. Trigger values (or nonsignificance criteria) for toxic parameters such as selenium are described in ARM 17.30.715(1)(c), which states: "discharges containing toxic parameters, which will not cause changes that equal or exceed the trigger values in Department Circular DEQ-7." The trigger value for selenium in DEQ-7 is 0.6µg/L.

COMMENT NO. 15: There is no technology that will achieve 0.8 µg/L.

RESPONSE: See response to Comment Nos. 9 and 14 above. The department disagrees that no treatment technology can achieve .8 µg/L, but acknowledges that achievability would depend on what the starting selenium levels are in the wastewater.

COMMENT NO. 16: Regarding costs to the regulated community, the draft written findings should include all point source dischargers, not just those discharging to Lake Kooconusa. Proceeding without that consideration eliminates development potential surrounding the lake and sets a bad precedent.

RESPONSE: Because the stringency findings only apply to the Lake Kooconusa water column standard in ARM 17.30.632(7)(a), it is appropriate to consider point source discharges to Lake Kooconusa. The department did review permits and activities on and around Lake Kooconusa and considered land disturbing activities known to cause increased mobilization of selenium into the aquatic environment such as mining, use of fossil fuels, and irrigation of selenium rich soils. Current treatment technologies for activities around Lake Kooconusa include best management practices (BMPs) such as: measures that

prevent storm water from coming into contact with pollutants; measures that minimize impervious surface area and retain runoff where it can be treated through infiltration; and measures that provide riparian buffers and reduce erosion to protect surface water from direct site runoff that may contain pollutants. Additionally, mines and industrial sites must document potential pollutants in a storm water pollution prevention plan (SWPPP) and provide adequate control measures to avoid impact to water quality. Existing and future land disturbing and industrial operations are already subject to storm water permitting requirements and BMPs to avoid impacts to surface water and no owner/operator/permittee should incur substantially increased treatment costs. Based on evidence in the record there is no significant geological source of selenium in Montana contributing to selenium concentrations in Lake Koocanusa and the two main anthropogenic activities that cause selenium mobilization to the aquatic environment (mining and irrigation of selenium-rich soil) do not occur around Lake Koocanusa. Contribution of selenium related to or arising from land disturbing activities would be addressed through BMPs required under applicable General Permits such as the General Permit for stormwater discharges associated with construction activity (MTR100000), the Multi-Sector General Permit for storm water discharges associated with Industrial Activity (MTR000000), or the General Permit for Sand and Gravel Operations (MTG490000).

COMMENT NO. 17: DEQ provides a wealth of peer-reviewed scientific literature supporting the selenium water quality standard for Lake Koocanusa necessary to protect aquatic life from selenium toxicity impacts.

RESPONSE: The department acknowledges the comment.

COMMENT NO. 18: DEQ's Derivation document is the ultimate document that should be peer-reviewed before Montana takes the drastic step of regulating in a manner more stringent than the federal guideline. Peer review of DEQ's use of the model and its Derivation document is lacking, as is external peer-review of the 2020 USGS model. Therefore, the written finding cannot legally be made at this time and cannot factually be made based on the current record.

RESPONSE: While the Department's support documents are not required to be peer reviewed, in this case, the development of a site-specific water quality standard for Lake Koocanusa implements a peer-reviewed and science-based approach for ascertaining a protective water quality standard for Lake Koocanusa. Different levels of peer-review were included throughout the process. Items peer-reviewed include the USGS Modeling Framework for Lake Koocanusa (Jenni et al. 2017), Lake Koocanusa Modeling report (Presser and Naftz, 2020), and four peer reviewed databases. The peer-reviewed Presser and Naftz (2020) report utilized the Presser and Luoma (2010) ecosystem model and calibrated it to the Lake Koocanusa ecosystem. The Department worked with this scientifically peer-reviewed and published model and utilized modeling parameters recommended by the Selenium Technical Subcommittee and provided by the USGS in association with the Presser and Naftz (2020) modeling report.

In addition, DEQ's Technical Support Document for the Derivation of a Site-Specific Water Quality Selenium Standard for Lake Koocanusa, MT was included in the submission to EPA for approval under the CWA. From EPA's Action Letter: *"EPA's WQS regulation at 40 C.F.R. Part 131 interprets and implements CWA sections 101(a)(2) and 303(c). 40 C.F.R. § 131.11(a)(1) requires that water quality criteria adopted by states and authorized tribes "be based on sound scientific rationale and must contain sufficient parameters or constituents to protect the designated use." For waters with multiple use*

designations, the criteria must support the most sensitive use.” EPA approved Montana’s site-specific water column standard based on this rationale.

Also importantly, the British Columbia Ministry of Environment and Climate Change Strategy contributed to the derivation document and extensively reviewed the document.

COMMENT NO. 19: The department is following the statute by providing the written findings and does no further rulemaking is warranted at this time.

RESPONSE: The department acknowledges the comment.

COMMENT NO. 20: The Findings meet and exceed the statutory requirements of MCA § 75-5-203(2) and are based on a thorough underlying record

RESPONSE: The department acknowledges the comment.

COMMENT NO. 21: This is just the latest rushed step in a disappointing process.

RESPONSE: The Montana Water Quality Act provides remedies available to a successful petitioner seeking review under § 75-5-203(4), MCA. Upon the BER finding ARM 17.30.632(7)(a) more stringent than comparable federal regulations or guidelines, the DEQ shall either revise the rule to conform to the federal regulations or guidelines or make the written findings in § 75-5-203(2) and (3), MCA. See § 75-5-203(4), MCA. The statutory stringency provisions further provide the department must complete the written findings within a reasonable period of time not to exceed 8 months after receiving the petition. In this case, DEQ complied with the statutory remedy by making the written findings prescribed in § 75-5-203(2) and DEQ must complete the process on or before June 14, 2022.

COMMENT NO. 22: If DEQ believes this step is truly necessary, it should only do so after undertaking new rulemaking in which information about the potential impacts on future development is fully developed and vetted for public comment.

RESPONSE: See Response to Comment 21. The public has had ample opportunity to comment on the initial rulemaking and these stringency determinations. Nearly 150 commenters provided comments during the public comment period for these draft stringency findings.

COMMENT NO. 23: Completing the written findings does not satisfy the statute, new rulemaking must occur.

RESPONSE: See Response to Comment 21.

COMMENT NO. 24: The statute requires that the written findings be made and published with the initial rule publication, not afterward and not based on a record that was developed without any public notice of the stringency. We urge DEQ to reinitiate the rulemaking process.

RESPONSE: See Response to Comment 21. The BER adopted site specific WQS for selenium in Lake Koochanusa that are consistent with the requirements of the Montana Administrative Procedure Act (MAPA), the Montana Water Quality Act, and the federal Clean Water Act. The site specific water

quality standard for Lake Kooconusa is necessary to effectuate the purpose of both the Montana Water Quality Act and the federal Clean Water Act, which is to protect the waters of Montana. In December 2020, the BER considered the requirement at § 75-5-203, MCA that the Board may not adopt rules more stringent than “comparable federal regulations or guidelines that address the same circumstance” and determined the selenium water column standard for Lake Kooconusa, codified at ARM 17.30.632(7)(a), was not more stringent because it was developed using comparable federal guidelines. Because the Board found the Lake Kooconusa water column standard no more stringent than Federal, it was not required to make the written findings under the stringency statute. The Board's tentative stringency determination was presented to the public, the public was adequately advised of the Board's original conclusions regarding stringency, and the public provided comments on the Board's stringency analysis. Any assertion that the initial rulemaking did not follow the stringency statute is wrong and not supported by the rulemaking record.

COMMENT NO. 25: The draft findings is a post hoc rationalization of the rule without the process required by law.

RESPONSE: See Response to Comment 21. Upon the BER's stringency determination, the statute provides that DEQ implements the remedy by either revising the rule or by making the findings under the stringency statute. See 75-5-203(4), MCA. DEQ is complying with the stringency provisions under the WQA by making the required stringency findings based on evidence in the rule making record.

COMMENT NO. 26: Montana should not set standards that are stricter than federal guidelines except for a critically important situation.

RESPONSE: Under the Montana Water Quality Act, the department may set standards more stringent than the federal regulations or guidelines if the stringency findings in 75-5-203(2) and (3), MCA are made after a public hearing and public comment and based on evidence in the record.

COMMENT NO. 27: As noted throughout the rulemaking and in the Board's recent order, the federal guideline is designed to protect 95% of fish species, including sensitive white sturgeon in the Kootenai River. Thus, the federal guideline appears sufficiently protective of Lake Kooconusa.

RESPONSE: Federal guidance also acknowledges that the toxicity of selenium in a water body is dependent on waterbody-specific variables and encourages states and tribes to develop site-specific standards using EPA tools where appropriate. The department did this and has clearly outlined in the record and in the draft written findings that a water quality standard of 0.8 µg/L is necessary to protect the aquatic life beneficial use and that 1.5 µg/L is not protective of the aquatic life beneficial use for Lake Kooconusa.

COMMENT NO. 28: Since we see no evidence to support a standard any more stringent than the federal guideline, we urge DEQ to immediately adopt the federal guideline of 1.5 µg/L for Lake Kooconusa.

RESPONSE: See Response to Comment 27. Water column concentrations of selenium in Lake Kooconusa are near 1 µg/L and there are fish found with egg/ovary fish tissue concentrations greater than 15.1 mg/kg dw . Water quality standards must protect beneficial uses, prevent impacts, and protect downstream uses. The Lake Kooconusa water column standard is necessary to mitigate harm to aquatic

life and protect downstream water quality. The rulemaking record demonstrates that 1.5 µg/L is not protective of the aquatic life beneficial use in Lake Koocanusa.

COMMENT NO 29: DEQ has provided no evidence of a more sensitive fish species, a different food web, a different bioaccumulation or different sensitivity that supports a standard set more stringent than the federal guideline. The Draft Finding refers to "lag time" as central to the discussions, but only cites to public comments offered by Wildsight, a Canadian environmental non-government organization. The Draft Finding does not cite to actual evidence of a "lag time before effects are fully realized in fish tissues." Draft Finding, p. 2. In fact, given that coal mining in the Elk Valley has been ongoing for more than 100 years, and given that the last ten years of water quality data within Montana's jurisdiction of Lake Koocanusa has remained stable near 1 microgram per liter, the reservoir is in steady state with no evidence of an upward trend and no reason to expect a lag time. DEQ also fails to cite to any evidence that any "new input" exists or will exist that would support a decision based on lag time. Importantly, Teck's water treatment facilities are removing 95% of selenium from treated water. Later this year, Teck will have water treatment facilities with capacity to treat up to 20 million gallons per day, four times its 2020 capacity. Therefore, selenium inputs to the reservoir are more likely to decrease in the future, rather than increase.

RESPONSE: DEQ followed the EPA defined methodology for developing a site specific water column standard. The same methodology was used by EPA to derive a site specific water column standard for the California San Francisco Bay where they derived a value of 0.2 ug/L. This standard is still being finalized. The idea of lag time is not central to standard setting process but was widely discussed by the selenium technical subcommittee at several meetings. Moreover, while concentrations within Lake Koocanusa remain relatively stable around 1 ug/L, recent data show even greater numbers of fish with egg/ovary concentrations greater than 15.1 mg/kg dw. The department disagrees with the commenter regarding the steady state status of Lake Koocanusa. The steady state status of Lake Koocanusa may be evaluated by the department in the future. The definition of steady state is: "Steady state" means, for the purposes of ARM [17.30.632](#), conditions whereby there are no activities resulting in new, increasing, or changing selenium loads to the lake or river aquatic ecosystem, and selenium concentrations in fish living in the aquatic ecosystem have stabilized."

COMMENT NO. 30: The levels in the lake have been steady, there is no reason for such a low standard

RESPONSE: The Lake Koocanusa water quality standard is based on a site-specific bioaccumulation modeling approach, a process defined by the U.S. Environmental Protection Agency in their national selenium criteria document. Whether the selenium levels in Lake Koocanusa are steady or unsteady does not determine the protective level of a pollutant in a waterbody. Furthermore, as described in the draft written findings, Presser and Naftz (2020) show cross sectional areas of Lake Koocanusa with selenium concentrations greater than 1 µg/L increasing from 2016-2019.

COMMENT NO. 31: Neither the water quality nor the fish tissue data indicate any harm is occurring that would warrant a standard more stringent than federal— cannot use any of the egg/ovary fish data as it was not collected according to EPA and USGS protocols.

RESPONSE: The department rejects the notion that egg/ovary fish data was not collected according to EPA and USGS protocols. Fish egg/ovary data show several species with egg/ovary concentrations

greater than 15.1 mg/kg dry weight (dw) suggesting there may be population level effects occurring. Water quality standards must protect beneficial uses and prevent impacts. There is sufficient evidence to demonstrate the Lake Kooconusa water column standard is necessary to mitigate harm to aquatic life. DEQ is developing a fish tissue assessment methodology and there will be an opportunity for the public to comment on the draft assessment method.

COMMENT NO. 32: DEQ has still not addressed background levels of selenium, a concern raised by us and others during the 2020 rulemaking. As evident from DEQ's data provided to the HJ37 Special Committee, many other Waterbodies in Montana have selenium.

RESPONSE: See Response to Comment No. 13. The department has provided data on selenium background level in surface waters of the Lake Kooconusa/Kootenai River watershed (HUC 17010101) and has answered questions from the HJ37 Special Committee, other lawmakers, and the public pertaining to background levels of selenium in the area surrounding Lake Kooconusa and within Montana. There is no data to suggest there is any appreciable source of selenium in the Lake Kooconusa/Kootenai watershed in Montana. On the contrary, the levels detected in the watershed are extremely low, more than 10x lower than the standard for Lake Kooconusa. Levels of selenium outside the watershed are not relevant to setting a site-specific standard for Lake Kooconusa.

COMMENT NO. 33: We remain concerned that naturally – occurring selenium levels would make it extremely difficult if not impossible for new development to meet permit limits based on the standard.

RESPONSE: See Response to Comment Nos. 13, 16, and 32. The department acknowledges the comment but notes that there is no evidence to support this concern. There are no known elevated selenium background levels in the Lake Kooconusa watershed in Montana. Moreover, any new facility or activity that would be authorized to discharge wastewater to Lake Kooconusa through an MPDES permit would only require a selenium permit limit if selenium is a pollutant of concern in the effluent with reasonable potential to cause an exceedance of water quality standards.

COMMENT NO. 34: DEQ still has nothing to regulate in Montana that would bring the Lake's selenium levels down to 0.8 micrograms per liter, therefore we again ask why set the standard so low that the lake will likely be perpetually impaired? To what end? There is nothing the standard can mitigate, so it creates a bad scenario that is impossible to resolve. The draft written findings do not present anything that the standard can mitigate because there is nothing.

RESPONSE: MT has authority under the Montana Water Quality Act to establish water quality standards for the protection of beneficial uses. Lake Kooconusa is classified as a B-1 water. Waters classified B-1 are to be maintained suitable for drinking, culinary, and food processing purposes, after conventional treatment; bathing, swimming, and recreation; growth and propagation of salmonid fishes and associated aquatic life, waterfowl and furbearers; and agricultural and industrial water supply. The department has established the site-specific selenium water quality standard for Lake Kooconusa for the protection of the aquatic life beneficial use.

Water quality standards are used in beneficial use assessments, permits, and total maximum daily load (TMDL) calculations. Idaho has determined that the Kootenai River in Idaho is impaired, will complete a TMDL, and will assign Montana a load allocation. Montana will have the obligation to reduce selenium levels entering Idaho from the Kootenai River. Montana's standards allow the department to assess our

waters and determine impairment status, complete TMDLs where necessary, and determine where load reductions can be made to ensure the health of downstream waters, which is our obligation under state and federal law. Based on what we know about the geology of Montana, it is likely that the only load reductions available will be from Canada. Having a TMDL document with a load allocation for Canada would then allow us to work proactively with Canada to achieve long-term water quality management goals.

COMMENT NO. 35: The 2020 water quality standard set at 0.8 micrograms per liter is no longer valid because it was promulgated in violation of state law. Ex.B. Board Order, p. 20. This current process and DEQ's Draft Finding cannot cure that violation because the public was not informed, during initiation of formal rulemaking, that the standard was more stringent than the federal guideline. Nor was the public provided the written finding during the initial and subsequent publications of the rule. The invalid and illegal rule is not enforceable and because its rulemaking is also illegal, the rule necessarily falls. DEQ's post hoc written finding tries to rationalize the previous decision, but it only perpetuates the error. The standard should have been designed - initially - to comply with the Stringency Statute. This after-the-fact justification is contrary to the Legislature's intention that standards set more stringent than federal should be limited to only those situations where necessary and only to the level necessary and achievable. There is no evidence in the record to support the written finding and, as pointed out in comments to the Board, contrary evidence exists. As noted by the Board, new rulemaking is required to cure those defects and lead to a valid, enforceable standard.

RESPONSE: See Response to Comment Nos. 21 and 24. The WQA's statutory stringency provisions provide remedies available to a petitioner seeking review under § 75-5-203(4), MCA. If, upon receipt of a petition and BER review, the BER finds a state WQA rule more stringent than comparable federal regulations or guidelines, the DEQ shall either revise the rule to conform to the federal regulations or guidelines or make the written findings in § 75-5-203(2) and (3), MCA. See § 75-5-203(4), MCA. The statutory stringency provisions further provide a petition brought under § 75-5-203, MCA does not relieve the petitioner of the duty to comply with the challenged rule. *Id.*

The Petitions brought by Teck and the Board of County Commissioners of Lincoln County, Montana ("Lincoln County") sought review under the WQA's statutory stringency provisions. In response to the Petitions, the BER reviewed ARM 17.30.632(7)(a) and determined it is more stringent than comparable federal regulations or guidelines. Upon the BER's determination, DEQ implemented the remedy provided at § 75-5-203(4), MCA by making the written findings in § 75-5-203(2), MCA.

The WQA's stringency provisions do not prohibit or invalidate rules that the BER determines are more stringent than comparable federal law but sets forth specific remedies, which DEQ followed. The BER exceeded its authority in fashioning a remedy that conflicts with the plain language of § 75-5-203, MCA.

COMMENT NO. 36: The Draft Finding is also wrong to assert that the model used to derive the standard was "calibrated" to Lake Koochanusa. Draft Finding, p. 3. As shown during the Legislative HJ37 Special Committee hearing on February 28, 2022, the USGS model made assumptions about bioavailability, but did not calibrate to Lake Koochanusa bioavailability. Exhibit D, Teck Memo, pp. 10-12. That same concern was raised during rulemaking. See Rulemaking Comments from Anne Fairbrother (RR_001852-001875), J.R. Simplot Company (RR_001751-001771), NAMC (RR_001830-001839), AEMA (RR_001841-001844), NMA (RR_001847-001850), CAC (RR_002100-

002101): Selenium Technical Subcommittee Expert Comments from Mr. Beaman (RR_000161, noting that use of 100% bioavailability in the model "resulted in significant overpredictions") and Mr. DeForest (RR_000194 - 000196, noting consistent overprediction). Those comments, which were raised but improperly addressed by DEQ and the Board during rulemaking, together with Dr. Luoma's testimony before the HJ37 Special Committee confirm that the 2020 USGS model was not calibrated to Lake Koochanusa and the Draft Finding is wrong to assert otherwise.

Response: As described in DEQ's March 9, 2022 Memo to HJ37 Special Committee, the model calibrates a peer-reviewed global model to local conditions by modifying the global model parameter values (in this case, the trophic transfer factors through the bioavailability factor and then using site-specific Kd data based on repeat field-observations over multiple years). As described in Presser and Naftz (2020), the Lake Koochanusa model overpredicted selenium concentrations in zooplankton and invertebrates relative to the concentrations seen in Lake Koochanusa. Thus, the model was calibrated to improve predictions on the local level, using a 60 percent bioavailability to address unmeasured local factors causing over prediction. The 60 percent bioavailability model has been calibrated to be accurate to local conditions informed by the zooplankton and aquatic insect tissue concentrations.

A wide range of Kd values were measured in situ, and it is known to be affected by hydrologic factors such as residence time and selenium speciation. Thus, for the Lake Koochanusa model, the USGS applied a modeling approach utilizing all observed pairs of dissolved: Particulate Se (Kd) to create scenarios accounting for the full range of the observed dataset (full uncertainty). The USGS provided the Department with different food web models from which the Department selected the "W6. TFM w/ TL 3 100% AqIns" model, reviewed the full range of results provided by the USGS (0.56-9.86 ug/L) and selected at the 75th percentile of the Kd distribution. This level of protection meets the protection goals defined at the conception of this work and protects the aquatic life beneficial use.

The Department has the discretion to make the risk decisions that were made in selecting the "W6. TFM w/ TL 3 100% AqIns" model and selecting the Kd value at the 75th percentile of the distribution. This decision was informed by the recommendations by those on the Selenium Technical Subcommittee, Lake Koochanusa Monitoring and Research Working Group members, public comment, and the specific protection goals for Lake Koochanusa defined at the beginning of the process.

COMMENT NO. 37: DEQ's Derivation document clearly states, and the Board confirmed, that the standard was derived by using a whole-body fish tissue threshold of 5.6 mg/kg dw (RR_000127), yet in the Draft Finding, DEQ now asserts that it used a whole-body fish tissue threshold of 8.5 mg/kg dw. Exhibit B, Board Order, p. 11 (noting that the 5.6 threshold "was used as an input to come up with a water column value of .8"); Draft Finding, p. 3; RR_000127. The 8.5 threshold was used in a different modeling scenario, but as noted by the Board, that scenario altered other model inputs (bioavailability and Kd percentile) to reach a similarly low number. Board Order, p. 11. As noted by Dr. Luoma during testimony before the Legislative HJ37 Special Committee, such practice amounts to "juggling" model inputs, which violates best modeling practices and affects the credibility of the use of the model. Exhibit D, Teck Memo, pp. 12-13. This concern was also raised during the rulemaking. RR_001907-001908 (Teck Comments).

Response: The department worked closely with the British Columbia Ministry of Environment throughout the standard setting process. British Columbia has fish tissue guidelines in place that are

lower than those in the U.S. As part of the long-term goal of this multi-year binational effort to adopt the same water column concentration for Montana and British Columbia, British Columbia and the Department jointly reviewed modeling scenarios that considered the British Columbia whole body value of 5.6 mg/kg dw. The modeling scenario utilizing the 5.6 mg/kg whole body value, a bioavailability of 45% and a Kd selection at the 50% percentile was very much guided by the British Columbia Ministry of Environment to meet their regulatory requirements, which differ from the regulatory requirements in Montana. However, it must be made clear that the Department proposed adoption of 8.5 mg/kg dw as the whole body standard not 5.6 mg/kg dw, and that EPA acted on the Department's water column translation approach utilizing the EPA whole body criterion of 8.5 mg/kg dw, applying a 60% bioavailability and selecting at the 75th percentile of the Kd distribution.

COMMENT NO. 38: New rulemaking is required because as found by the Board and as testified by Dr. Sam Luoma, co-author of the underlying 2010 model (RR_001 106 - 001131), DEQ derived the standard by using a variety of model inputs in an excessively stringent and inconsistent manner. Additionally, the model was not correctly calibrated for the reservoir and resulted in a wrong number of 0.8 micrograms per liter.

Response: See Response to Comment 21, regarding the remedy for stringency determinations. See Response to Comment 36 and 37 regarding the model.

COMMENT NO. 39: An error in the Draft Findings' discussion of the Scientific Approach is that it erroneously attributes stated protection goals to the Selenium Technical Subcommittee, but the record citation proves that those "protection goals" were actually funding agreement terms between DEQ and USGS. RR002980. Those terms, to the extent they are untethered to the Montana Water Quality Act, are inappropriate and an unlawful extension of DEQ's authority to "adopt standards of water quality, considering the economics of waste treatment and prevention" by focusing on protecting "beneficial uses." Mont. Code Ann. § 75-5-301(1) and (2).

Response: See RR_002497, Response to Comment Nos. 9, 10, and 16. The stated protection goals were proposed in March 2019 in the *Proposed Workplan for a Site Specific Selenium Water Column Criteria for Lake Koocanusa*, (<http://lakekoocanusaconservation.pbworks.com/>) discussed extensively by the Selenium Technical Subcommittee in 2019, and ultimately incorporated into the 2020 Presser and Naftz modeling work. The defined protection goals for Lake Koocanusa are: consideration of ecologically significant species and those important to stakeholders; protection of 100% of the fish species in the reservoir assuming a reproductive endpoint from reproductively mature females that are feeding in an ecosystem that functions as a lentic reservoir; long-term protection for fish in all parts of the reservoir during all phases of reservoir operation, all selenium loading profiles, and all water years; protection of ecosystems during maximum dietary selenium exposure (that is, feeding within a benthic food web); and protection of downstream uses including protection of endangered Kootenai River White Sturgeon.

COMMENT NO. 40: Derivation of the site-specific water column standard was not based on any "collective scientific expertise of the Selenium Technical Subcommittee" because the Subcommittee never made consensus or even a majority recommendation on the modeling or the standard. See also RR_001897 (Teck Comments); RR_000134-000277 (App. A to DEQ's Derivation document, providing comments from only four individual Subcommittee Members, but none from the Subcommittee as a whole).

Response: The Selenium Technical Subcommittee (SeTSC), was established by the Lake Kooconusa Monitoring and Research Working Group (LKMRWG), at the direction of the Steering Committee and is comprised of selenium experts from both the US and Canada and supported by the Montana Department of Environmental Quality and BC Ministry of Environment. The overall objectives for the Se TSC were to develop selenium criteria/objectives for Lake Kooconusa that are protective of the uses of lake including, but not limited to, aquatic life, human health, recreation, wildlife, and agriculture. The SeTSC met regularly for over four years through conference calls and in-person workshops with the primary goal of evaluating available data facilitating the development of a site-specific selenium criterion for Lake Kooconusa. Consensus was never a goal of the group, rather an open exchange and sharing of technical expertise from top selenium experts. More specifically, the process has involved the following tasks: Collection and analysis of existing Lake Kooconusa information to identify gaps in scientific understanding of the lake chemistry and ecology that are relevant to the stated research objectives; Prioritize monitoring and research activities and tasks Development and/or evaluation work plans for various research projects including the development of SAPs/QAPPs; Definition of critical endpoints to be sufficiently protective of the uses of Lake Kooconusa. Seminal products developed during this process include the USGS report titled; *Conceptual Modeling Framework to Support Development of Site-Specific Selenium Criteria for Lake Kooconusa, Montana, U.S.A., and British Columbia, Canada* (Jenni, Naftz, and Presser, 2017) and the Lotic Environmental titled Kooconusa Reservoir Data Compilation Report Volume 2 (Lotic Environmental, 2019). These products provided critical information enhancing the SeTSC understanding of the available data and the mechanistic model proposed for use in development of a site-specific water quality threshold protective of the designated uses of Lake Kooconusa.

COMMENT NO. 41: Further, new rulemaking is required because the Legislature's Special Committee hearings revealed that fish tissue data confirm selenium levels found in the reservoir are safe and have been safe for as long as data has been collected. As well, Montana Fish Wildlife and Parks has confirmed that it has seen no fish population declines in Kooconusa, and that it has no evidence of deformities due to selenium. Further data also shows that selenium concentrations in the Lake Kooconusa have been stable since 2012.

Response: Regarding rulemaking, please see Response to Comment Nos. 21 and 24. In addition, HJ 37 committee work is not complete and the committee has made no conclusions regarding impacts to aquatic life.

COMMENT NO. 42: Throughout the process and to present, DEQ has disregarded and minimized Lincoln County's legitimate concerns about finding that Lake Kooconusa is impaired for selenium. RESPONSE: DEQ has fully considered all substantive comments on during both the process of adopting selenium water quality standards for Lake Kooconusa and the Kootenai River and in completing the stringency findings for the site-specific water column selenium standard for Lake Kooconusa, MT.

Ancillary comments not related to stringency

COMMENT: The Draft Finding presents a misleading account of selenium inputs. As a threshold matter, water quality data and loading information from Canada are not relevant unless corroborated by data and information from within Montana's jurisdiction. No such corroboration is or can be provided. The implication that selenium levels have reached 8 micrograms per liter is flat wrong and especially egregious because the citation is to data from the Elk River, not the reservoir and not anywhere in Montana. There is no water quality data within Montana's jurisdiction of the reservoir that high or anywhere near that high. DEQ's own data show that the selenium levels in the reservoir have remained steady near 1 microgram per liter for the last ten years. RR_002481; RR_000106. Thus, the "selenium inputs" as described in the Draft Finding are misleading, inappropriate and cannot support a Montana standard that is intended to govern a Montana waterbody.

RESPONSE: The Lake Koocanusa water quality standard for selenium is established to protect the beneficial uses of Lake Koocanusa and will be used in beneficial use assessments, permits, and total maximum daily load (TMDL) calculations. DEQ agrees it is likely the selenium load is from the Elk Valley in Canada. If Lake Koocanusa is determined to be impaired for selenium, development of a TMDL will quantify sources and load allocation, further tools that will allow Montana to work with Canada to achieve long-term water quality management goals.

COMMENT: The Selenium Technical Subcommittee did not guide development of the Lake Koocanusa standard promulgated in 2020. Indeed, the Subcommittee as a whole never reviewed or provided input on DEQ's Derivation document, which was released after the last Subcommittee meeting in 2020. The Draft Finding refers to DEQ's judgment and risk decisions, but, as noted in comments to the rulemaking cited above and as confirmed by testimony from Dr. Sam Luoma described in Exhibit D, the process used amounts to "juggling coefficients" which is not best modeling practice and jeopardizes the credibility of the use of the model.

Furthermore, "risk decisions" are not supported in the Montana Water Quality Act as a viable basis for justifying a standard set more stringent than the federal guideline.

RESPONSE: See Responses to Comment Nos. 39 and 40

COMMENT: The Draft Finding also mistakenly refers to 2020 fish tissue data. Notably, that egg/ovary data suffers from the same fatal flaw as all other egg/ovary data from the reservoir- it was not collected from gravid females and is therefore not useable or reliable. An accurate look at water quality and fish tissue data from Montana's Lake Koocanusa confirms that no harm is occurring. See Exhibit D, Teck Memo.

RESPONSE: See Response to Comment No. 31.