

**BEFORE THE COLORADO WATER QUALITY CONTROL COMMISSION
Department of Public Health and Environment, State of Colorado**

**RESPONSIVE PREHEARING STATEMENT OF THE BEAR CREEK WATERSHED
ASSOCIATION**

**IN THE MATTER OF THE RULEMAKING HEARING FOR CONSIDERATION OF THE
ADOPTION OF REVISED WATER QUALITY CLASSIFICATIONS, STANDARDS AND
DESIGNATIONS FOR MULTIPLE SEGMENTS IN THE CLASSIFICATIONS AND NUMERIC
STANDARDS FOR SOUTH PLATTE RIVER BASIN, LARAMIE RIVER BASIN, REPUBLICAN RIVER
BASIN, SMOKY HILL RIVER BASIN, REGULATION #38 (5 CCR 1002-38).**

The Bear Creek Watershed Association (hereinafter “Association”) presents its Responsive Prehearing Statement in the above referenced matter.

Factual Claims.

A. Association Authority

The Association is the water quality management agency for the Bear Creek Watershed. The Association is responsible for watershed management, restoration and implementation within the context of a management agency and the Bear Creek Control Regulation (Control Regulation 74, 5 CCR 1002-74).

B. Association Summary Positions

The Association has reviewed the standards changes as proposed by the Water Quality Control Division in their WQCD Notice of Rulemaking for Regulation 38 (Exhibit1), WQCD Exhibit 38-1 Rationales and WQCD Exhibit 38-3 Bear Creek Reservoir Site-Specific Standards. The Association has collected a very significant water quality data set for most of the segments throughout the watershed. The Association was surprised at the large number of in-accuracies contained in the WQCD Exhibit 38-1 Rationales. Many of the segment descriptions used in the rationale were defined years ago and have since been changed by the WQCC; as such many of the segments and associated information is not correct. There are many of the listed dischargers and water supplies shown for the wrong segments. There are missing water suppliers and dischargers. The 303(d) listings are shown for the wrong segments or are missing from the listed segments. The wrong control regulation is listed for Bear Creek Reservoir. The rationale also lists Brook Trout for segments that have never had Brook Trout. Other listed fish species are also incorrect. There are missing macroinvertebrate sampling locations and some of the MMI scores don't match the data record. The Association was particularly disappointed to see that the WQCD lists a number of segments as not having any water quality data, when in reality the Association has over a decade of data on these segments and the Association transmits this data annually to the WQCD. Instead of making any issue of the many errors in the rationales for segments in the Bear Creek Watershed, the Association proposes to work with the WQCD staff to correct the rationale for future uses.

The Association doesn't believe the errors would change the WQCD proposed standards changes to these segments. The Association is supportive of the metal changes proposed for segments. The Association has no concern with the proposed chronic arsenic temporary modification. The Association is generally supportive of the chlorophyll a standards proposed to protect the recreation use and the phosphorus standards proposed to protect the Aquatic Life use for specific stream segments.

Segment 7 is the Mainstem of Bear Creek and all tributaries to Bear Creek, including wetlands, within the Mt. Evans Wilderness Area. The Colorado definition of wetlands defines tributary wetlands as wetlands that are the head waters of surface waters, which includes the Fen complex below Summit Lake. In the Mt. Evans portion of the watershed, these wetland fens are an important and unique wetland type. They

are ancient ecosystems 8,000 to 12,000 years old. They “provide important headwater quality functions,” including carbon storage, water storage, wildlife habitat, and biodiversity. Fens are peat-forming wetlands that receive nutrients from sources other than precipitation: usually from upslope sources through drainage from surrounding mineral soils and from groundwater movement. The Association has collected water quality data from this Fen complex and is finding the nutrient content is higher than expected. As such, the Association is concerned about having the proposed chlorophyll and phosphorus standards apply to this portion of segment 7. The Association recommends adding a qualifier to exclude wetlands for the new standards for segment 7. The Association is working to better understand the complex chemistry of the Fens and plans to make a recommendation in the future, specific to Fen water quality.

The Association was involved in extensive technical review of the water quality data for Bear Creek reservoir in 2008, which included numerous presentations and discussions, and supported the recommendation that the narrative standard be replaced with numeric standards for chlorophyll and phosphorus. The Association was not involved with the WQCD staff in the development of the new water quality analyses contained in the WQCD Exhibit 38-3 Bear Creek Reservoir Site-Specific Standards. The Association Board has not had adequate time to fully understand or discuss the implications of the new proposed standards changes. The Association does assume they will be the primary stakeholder responsible to help implement the new chlorophyll and phosphorus standards. The proposed standard changes will have significant economic impact to the association membership.

The WQCD Exhibit 38-3 Bear Creek Reservoir Site-Specific Standards implies that the Association has not been striving sufficiently to help resolve the water quality concerns in Bear Creek Reservoir or elsewhere in the watershed. The Association monitors watershed nutrients by major stream segment beginning near Mt. Evans (Segment 7) and extending downstream to Bear Creek Reservoir. The Association has been diligently working on numerous nutrient reduction strategies, education, outreach, and reduction measures throughout the watershed. The Association has helped implement manure management practices and composting facilities, targeted wastewater vaults for removal or repair, defined priority water quality tiers and worked to improve integration planning and restorations. The Association was actively involved in many flood restoration projects and provided critical information for funding support. The Association is actively addressing the nutrient loading from onsite wastewater systems and has policies to better address water quality concerns through local governments. The Association has targeted illicit dumping and developed educational and awareness programs to reduce these practices, and actively supported recycling efforts. The Association supports the Evergreen medical take-back station to keep medical wastes from being discharged into streams. The Association has a new extensive online reporting and evaluation system targeting nonpoint sources throughout the watershed. The water quality 20-year data set for the watershed shows a 50-70% reduction in nonpoint phosphorus from reaching Bear Creek Reservoir in a typical year.

The Association has helped reduce external phosphorus in the watershed, which is reflected in the water quality for Bear Creek Reservoir. The reservoir continues to show a more eutrophic condition than was anticipated by the management program. The Association believes the scientific analysis contained in the WQCD Exhibit 38-3 Bear Creek Reservoir Site-Specific Standards is basically sound. The Association does believe there is an overstatement on the affect of the aeration system. The aeration system is not used continuously in the summer months. The Association and Lakewood operate the aeration system to assure oxygen transfer during phased on-off cycling, primarily to protect the excellent fishery in the growing season. In recent years the aeration system was extensively damaged and was not very efficient. However, the reservoir still recycles phosphorus under those conditions when the aeration system is off.

The September 2013 flood also demonstrated an additional method that results in recycling of nutrients. The massive inflow waters caused the bottom of the reservoir to scour in a line from the inlet to the outlet structure of over 2 meters. The bottom reservoir sediments were extensively mixed during the flooding event. Some areas of the reservoir experienced over 3 meters of sediment deposition. This single event

introduced about 14,000 pounds of phosphorus into the reservoir, which will only make the internal loading problem more complex. The reservoir was established as a flood control structure and water quality was not a consideration in the design and construction. As such, the reservoir eutrophication problem may never be resolved under the current and proposed operational system as administered by the U.S. Army Corps of Engineers.

The Association takes numerous water column profiles for temperature year-round in Bear Creek Reservoir. While there was a more central pool in the reservoir with a depth of about 10m, this pool is only about 25% of the reservoir area. Most of the reservoir is shallower with the average reservoir depth of about 5m. In periods when the reservoir is stratified and there is no operational aeration system, the temperature difference between the top waters and bottom waters is only 2-3 C°. The Association contends that the concept of allowing stratification to occur so that the colder temperatures in the hypolimnion could slow recycling of phosphorus is less likely because there are generally no colder temperatures in the hypolimnion.

The Association is willing to use a more aggressive operational plan (reduced use) with the new aeration system that was installed in 2014. The primary purpose for the new aeration system is to protect the mixed species warm/ cold fishery. The Association supports the temporary modification for chlorophyll and phosphorus due to the uncertainty about the reservoir meeting the proposed standards. Although the Association has some concerns about the WQCD Exhibit 38-3, the Association will support the proposed standards and recommend adoption of:

- 1) BCR nutrient standards
 - a. Chlorophyll – 12.2 ug/L
 - b. Total phosphorus – 22.2 ug/L
 - c. Assessed as a summer average concentration at BCWA site 40 (deepest part of reservoir) based on at least three samples representative of the mixed layer in the summer growing season
 - d. Allow one exceedance in five years on average for either standard
- 2) Adopt temporary modifications for both standards
 - a. Basis: uncertainty about the underlying standards
 - b. Set expiration for 2020

The Association is well aware that the proposed total phosphorus standard of 22.2 ug/l will get translated into an annual load allocation for Bear Creek Reservoir. This new load allocation will result in the wastewater dischargers getting new wasteload allocations that will be much lower than the existing wasteload allocations. These new WLAs will have significant impacts on the dischargers and may require costly system upgrades to comply with the WLAs. The Association is concerned that setting a new lower standard will require the dischargers to meet new permit limits that may not make a significant reduction of the nutrient problem in Bear Creek Reservoir. However, the Association is cognizant that this issue cannot be resolved in this hearing process.

Table 1 summarizes the Association positions on the proposed standard changes for the segments in the Bear Creek Watershed. The Association is generally supportive of the WQCD proposed changes. The Association strongly supports the proposed classification change to Evergreen Lake making it a Direct Use Water Supply. The Association is monitoring Evergreen Lake and the data shows it can support a DUWS classification.

Table 1 Summary Positions Bear Creek Watershed Association

Segment	Stream Segment Description	Classifications	Physical Biological	Inorganic	Metals	TM	BCWA Position
1a	Mainstem of Bear Creek from the boundary of the Mt. Evans Wilderness area to the inlet of Evergreen Lake		Chla=150 mg/m ^{2c}	P=110ug/l (tot) ^c	Cd(ac)=5.0(Trec), Pb(ac)=50(Trec), Mo(ch)=150(Trec), Ni(ch)=100(Trec)		Support metal changes. Support Chla and TP
1b	Mainstem of Bear Creek from Harriman Ditch to the inlet of Bear Creek Reservoir				Cd(ac)=5.0(Trec), Pb(ac)=50(Trec), Mo(ch)=150(Trec), Ni(ch)=100(Trec)	As(ch)=hybrid Exp 12/31/21	Support metal changes; Temporary Modification As(ch)
1c	Bear Creek Reservoir.		Chl=12.2 ug/l, TP=22.2 ug/l		Cd(ac)=5.0(Trec), Pb(ac)=50(Trec), Mo(ch)=150(Trec), Ni(ch)=100(Trec)	TP & Chl exp 12/31/2020	Support metals. Support Chl = 12.2 ug/l; Support TP=22.2 ug/l. Support Temporary modification
1d	Evergreen Lake.	<u>DUWS</u>			Cd(ac)=5.0(Trec), Pb(ac)=50(Trec), Mo(ch)=150(Trec), Ni(ch)=100(Trec)		Support DUWS. Support metals.
1e	Mainstem of Bear Creek from the outlet of Evergreen Lake to the Harriman Ditch.				Cd(ac)=5.0(Trec), Pb(ac)=50(Trec), Mo(ch)=150(Trec), Ni(ch)=100(Trec)		Support metals
2	Mainstem of Bear Creek from the outlet of Bear Creek Reservoir to the confluence with the South Platte River.				Cd(ac)=5.0(Trec), Pb(ac)=50(Trec), Mo(ch)=150(Trec), Ni(ch)=100(Trec), Cr111(ch)=TVS		Support metals
3	All tributaries to Bear Creek, including all wetlands, from the source to the outlet of Evergreen Lake, Except for specific listings in Segment 7.		Chla=150 mg/m ^{2c}	P=110ug/l (tot) ^c	Cd(ac)=5.0(Trec), Pb(ac)=50(Trec), Mo(ch)=150(Trec), Ni(ch)=100(Trec)		Support metal changes. Support Chla and TP
4a	All tributaries to Bear Creek, including all wetlands, from the outlet of Evergreen Lake to the confluence with the South Platte River, except for specific listings in Segments 5, 6a, and 6b.				Cd(ac)=5.0(Trec), Pb(ac)=50(Trec), Mo(ch)=150(Trec), Ni(ch)=100(Trec), Cr111(ch)=TVS	As(ch)=hybrid Exp 12/31/21	Support metal changes; Temporary Modification As(ch)
5	Swede, Kerr, Sawmill, Troublesome, and Cold Springs Gulches, and mainstem of Cub Creek from the source to the confluence with Bear Creek.		Chla=150 mg/m ^{2c}	P=110ug/l (tot) ^c	Cd(ac)=5.0(Trec), Pb(ac)=50(Trec), Mo(ch)=150(Trec), Ni(ch)=100(Trec), Cr111(ch)=TVS	As(ch)=hybrid Exp 12/31/21	Support metal changes. Support Chla and TP. Support Temporary Modification As(ch)
6a	Turkey Creek system, including all tributaries and wetlands, from the source to the inlet of Bear Creek Reservoir, except for specific listings in Segment 6b.		Chla=150 mg/m ^{2c}	P=110ug/l (tot) ^c	Cd(ac)=5.0(Trec), Pb(ac)=50(Trec), Mo(ch)=150(Trec), Ni(ch)=100(Trec), Cr111(ch)=TVS		Support metal changes. Support Chla and TP, except exclude wetlands
6b	Mainstem of North Turkey Creek, from the source to the confluence with Turkey Creek.				Cd(ac)=5.0(Trec), Pb(ac)=50(Trec), Mo(ch)=150(Trec), Ni(ch)=100(Trec), Cr111(ch)=TVS	As(ch)=hybrid Exp 12/31/21	Support metal changes; Temporary Modification As(ch)

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Basin: Bear Creek**

Segment	Stream Segment Description	Classifications	Physical Biological	Inorganic	Metals	TM	BCWA Position
7	Mainstem and all tributaries to Bear Creek, including wetlands, within the Mt. Evans Wilderness Area.		Chla=150 mg/m ² ^C	P=110ug/l (tot) ^C	Cd(ac)=5.0(Trec), Pb(ac)=50(Trec), Mo(ch)=150(Trec), Ni(ch)=100(Trec)		Support metal changes. Support Chla and TP, except exclude wetlands
8	Lakes and reservoirs in the Bear Creek system from the sources to the boundary of the Mt. Evans Wilderness area.		Chla=8 ug/l ^B	P=25 ug/l (tot) ^B	Cd(ac)=5.0(Trec), Pb(ac)=50(Trec), Mo(ch)=150(Trec), Ni(ch)=100(Trec)		Support metal changes. Support Chla and TP
9	Lakes and reservoirs in the Bear Creek system from the boundary of the Mt. Evans Wilderness area to the inlet of Evergreen Lake.		Chla=8 ug/l ^{BC}	P=25 ug/l (tot) ^{BC}	Cd(ac)=5.0(Trec), Pb(ac)=50(Trec), Mo(ch)=150(Trec), Ni(ch)=100(Trec)		Support metal changes. Support Chla and TP
10	Lakes and reservoirs in drainages of Swede Gulch, Sawmill Gulch, Troublesome Gulch, and Cold Springs Gulch from source to confluence with Bear Creek.				Cd(ac)=5.0(Trec), Pb(ac)=50(Trec), Mo(ch)=150(Trec), Ni(ch)=100(Trec), Cr111(ch)=TVS		Support metals
11	Lakes and reservoirs in the Bear Creek system from the outlet of Evergreen Lake to the confluence with the South Platte River, except as specified in Segments 1c, 10, and 12; includes Soda Lakes.				Cd(ac)=5.0(Trec), Pb(ac)=50(Trec), Mo(ch)=150(Trec), Ni(ch)=100(Trec), Cr111(ch)=TVS	As(ch)=hybrid Exp 12/31/21	Support metal changes; Temporary Modification As(ch)
12	Lakes and reservoirs in the Turkey Creek system from the source to the inlet of Bear Creek Reservoir				Cd(ac)=5.0(Trec), Pb(ac)=50(Trec), Mo(ch)=150(Trec), Ni(ch)=100(Trec), Cr111(ch)=TVS		Support metals

Footnote B: Total phosphorus (TP) and chlorophyll *a* standards apply only to lakes and reservoirs larger than 25 acres surface area.

Footnote C: Total phosphorus (TP) and chlorophyll *a* standards only apply above the facilities listed at 38.5(4).

DUWS - Interim Chlorophyll *a* Values = 5 ug/l, March 1-November 30 average chlorophyll *a* (ug/L) in the mixed layer of lakes (median of multiple depths), allowable exceedance frequency 1-in-5 years.

²annual median Total Phosphorus (ug/L), allowable exceedance frequency 1-in-5 years.

C. Exhibits and Written Testimony.

The Association reserves the right to submit additional materials as part of the rebuttal process, as necessary.

D. Witnesses.

The following manager and members of the Association may provide testimony on the appropriateness of proposed changes and rebuttal testimony as needed.

Russell Clayshulte Bear Creek Watershed Manager 1529 S. Telluride St. Aurora, Colorado 80017-4333	Dave Lighthart Bear Creek Watershed Association Board 30920 Stagecoach Boulevard Evergreen, Colorado 80437
Chris Schauder Bear Creek Watershed Association Co-Chair 30920 Stagecoach Boulevard Evergreen, Colorado 80437	Alan D. Searcy Bear Creek Watershed Association Co-Chair City of Lakewood, Public Works Department 480 S. Allison Parkway, Civic Center North Lakewood, CO 80226