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March 3, 2011

Ref: 8EPR-EP

Steve Gunderson, Director
Water Quality Control Division
Department of Public Health and Environment
4300 Cherry Creek Drive South
Denver, CO 80222-1530

Subject: EPA Comments on Colorado's Draft Nutrient Proposal

Dear Mr. Gunderson:

EPA Region 8 staff and management have met with Division management on two occasions to review and discuss the State's draft nutrient proposal. During those meetings, we highlighted our concerns and indicated our willingness to work with the Division and the nutrient workgroup to develop an alternative approach that EPA could support. The purpose of this letter is to document EPA's concerns with draft revisions to Regulation #31 and the new Regulation #85 (presented to the workgroup on February 14th, 2011) so that the Division and the workgroup have a clear understanding of EPA's perspective. Please note that the positions described in our comments are preliminary in nature and should not be construed as final Agency decisions pursuant to the Clean Water Act (CWA).

Based on our review of the Division's proposed approach, we are concerned that:

- For nutrient causal and response variables, Colorado is not currently in compliance with the federal requirements for water quality standards, CWA § 303(d) listing and National Pollutant Discharge Elimination System (NPDES) permitting.
- Regarding water quality standards (WQS) and CWA § 303(d) listing:
  - we have identified several concerns in our review of the Division's draft nutrient values;
  - we are concerned that the universe of waters where the Commission must adopt protective numeric standards prior to 2022 is not clear;
  - based on our review of the available data, the scope of waters impacted by nutrients is much broader than the limited segments that would be protected by the Division's draft proposal;
  - Colorado does not currently identify waters impaired by nutrients using Section 31.11 narrative standards; and

    - For future 303(d) lists, EPA will review the State's list of impaired water and, if necessary, add waters that are not included but are impaired by nutrients.
- Regarding NPDES permitting:
    - Control Regulation # 85 technology limits would not protect the designated use in all circumstances and cannot be a substitute for water quality-based effluent limits; and
    - Currently, the Control Regulation allows for compliance schedules for technology-based limits, which is inconsistent with EPA NPDES regulations.

Enclosure 1 provides additional details on EPA's concerns with both Regulations #31 and #85 and proposes several alternatives for the State to consider such as: 1) flexibility to phase the adoption of protective WQS; 2) focus on WQS for high priority parameters, waters and/or uses; 3) use of the narrative standard; 4) use of compliance schedules to meet water quality standards; or 5) consideration of categorical variances.

To resolve EPA's concerns regarding the draft rules, EPA proposes to work with the Division to explore alternatives that would comply with the CWA, reduce nitrogen and phosphorus loading in an expeditious manner, and provide state flexibility. These alternatives may offer a different strategy for adopting and implementing narrative and numeric water quality standards for nutrients. Colorado's current and proposed approaches to WQS, listing, and permitting for nutrients are inconsistent with the CWA. We want to avoid a situation where EPA needs to exercise its CWA oversight authorities and duties.

Sincerely,

Sandra Spence, Acting Chief
Water Quality Unit

Sincerely,

Colleen Gillespie, Chief
Wastewater Unit

Enclosure 1

EPA COMMENTS ON COLORADO'S DRAFT REGULATION #31 AND DRAFT REGULATIONS #85

Regulation #31

Water Quality Standards

We commend the Division for including a chlorophyll-a value placeholder for Protected Water Supply Lakes and Reservoirs in draft 31.17(4). We agree that water supply is likely the most sensitive use classification and warrants a protective numeric standard. We are interested in working with Division staff and the stakeholders to refine this aspect of the draft proposal including the following tasks: (1) analysis of the Colorado water supply study dataset, (2) derivation of chlorophyll, total phosphorus (TP) and total nitrogen (TN) values, and (3) development of more prescriptive language to direct application of the values to individual segments.

States are required to review water quality standards (WQS) and, where appropriate, adopt revised standards at least every three years per Clean Water Act (CWA) Sections 303(c)(1) and (2). To be consistent with EPA's WQS implementing regulation at 40 CFR 131.11(a)(1), new and revised criteria must be based on sound scientific rationale and contain sufficient parameters or constituents to protect the most sensitive designated use. CWA Section 303(c)(3) and 40 CFR Section 131.21 require EPA to review and approve or disapprove the submitted standards.

EPA's specific concerns regarding the above-mentioned items and Colorado's proposed approach to water quality standards for nutrients include the following:

1) If the Regulation #31 changes are adopted as currently drafted, the Water Quality Unit would be likely to recommend disapproval of one or more aspects of new Section 31.17.

2) We identified several concerns in our review of the Division's draft nutrient values. For example, the draft warm water chlorophyll-a value of 20 µg/l, as a growing season average, may not adequately protect aquatic life or recreational uses in Colorado lakes and reservoirs. We have requested that the Division re-examine the basis for selecting this draft threshold and consider whether a different table value would be more appropriate and scientifically defensible. Detailed supporting information is needed to justify each of the key elements of the Division's proposal. Therefore, we will reserve our official comments on the nutrient values until we have reviewed the detailed supporting information.

3) Except in specific circumstances, provisions in draft Section 31.17(5) (for chlorophyll and total phosphorus) and draft Section 31.17(6) (for total nitrogen) would restrict the

Commission from applying nutrient values to individual segments prior to May 31, 2022. Based on discussions during work group meetings, our understanding is that the fundamental intent of these provisions is to restrict the universe of waters where protective numeric standards are adopted during the next two rounds of basin-specific WQS reviews (i.e., during 2012-2022). This approach does not comply with the CWA, which requires adoption of standards where necessary to protect the designated use.

4) We recognize that the draft proposal would authorize adoption of protective standards in some cases (e.g., waters located above point source discharges, reservoirs with a Water Supply use classification, other circumstances where the Commission determines protective standards are necessary). We are concerned that the universe of waters where the Commission must adopt protective numeric standards, and the criteria guiding those adoption decisions, are not clear. This approach makes it challenging for EPA to affirmatively conclude that Colorado is on a path to comply with the CWA and protect waters from nitrogen and phosphorus pollution.

5) For most waters that receive point source discharges, our understanding is that the Division intends to rely on "technology-based" effluent limits in draft Regulation #85 to achieve incremental water quality improvements. We are concerned that the "technology-based" effluent limits described in subsections 85.5(1)(1)(a) and (b) would fail to protect designated uses and the Division has not developed a plan that ensures that uses will be protected in the future. In addition, several existing control regulations in Colorado already require more protective phosphorus reductions, suggesting that lower effluent limits are technologically feasible (e.g., the Cherry Creek Reservoir Control Regulation requires that point sources achieve permit limits of 50 µg/l TP).

6) We recognize that States have discretion in identifying triennial review WQS priorities, and that the draft Regulation #31 language reflects several priorities for upcoming basin-specific WQS reviews. The Division's draft provisions would establish priorities as its tops priority the adoption of WQS for 1) chlorophyll and total phosphorus (as opposed to total nitrogen), 2) for water supply reservoirs (as opposed to other uses and water body types), and 3) for waters that are unaffected by point source discharges. Although such priorities may be reasonable and appropriate *as part of an overall strategy to achieve CWA compliance*, we are concerned that the focus on a very limited universe of waterbodies in the draft rules place a very low priority on adoption of protective WQS during 2012-2022 basin reviews.

7) In our review of the data provided to the nutrient workgroup, we compared the ambient data to the draft nutrient values. This review demonstrates that the scope of waters impacted by nutrients is much broader than the limited segments that would be protected by the Division's draft proposal. Tables 1 and 2 present a comparison of the Division's stream and lakes/reservoir data to the draft nutrient values. If EPA's 304(a) nutrient criteria were used as benchmarks, the percent of waters considered impaired for nutrients would be even higher. This preliminary analysis suggests that 10-42% of cold waterbodies and 33-60% of warm waterbodies with nutrient data in CO have potential nutrient impairments. This information supports our concern that protective WQS would

not be adopted for many of the segments most affected by nutrients from point and nonpoint sources. Appendix 1 includes a map of the stream / river sampling locations with median total phosphorus and total nitrogen concentrations above the proposed nutrient values.

Table 1. Median Nutrient Concentrations for Colorado Streams compared to the Division's Draft Nutrient Values

	Cold Water* (TP = 0.11 mg/L; TN = 0.4 mg/L)			**Warm Water** (TP = 0.16 mg/L; TN = 2.0 mg/L)		
	N	% Exceedance	Range	N	% Exceedance	Range
Median TP	236	10%	0.14-1.77 mg/l	100	48%	0.018 - 2.9 mg/l
Median TN	157	42%	0.032 - 8.11 mg/l	65	60%	0.189- 38.55 mg/l

*Cold Water includes biotypes 1 and 2

Table 2. Median Nutrient Concentrations for Colorado Reservoirs compared to the Division's Draft Nutrient Values

	Cold Water (TP =0.020 mg/l ; TN = 0.410 mg/l; Chl-a = 8 µg /l **)**			**Warm Water** (TP =0.080 mg/l ; TN = 0.850 mg/l; Chl-a = 20 µg /l)		
	N	% Exceedance	Range	N	% Exceedance	Range
Summertime Avg. TP	43	21%	0.003 - 0.112 mg/l	30	40%	0.009 – 0.710 mg/l
Summertime Avg. TN*	18	22%	0.009 – 0.864 mg/l	13	46%	0.17 – 2.13 mg/l
Summertime Avg. Chl-a	43	14%	0.425 -20.4 µg/l	30	33%	2.3 - 82.6 µg/l

*Due to the small sample size for total nitrogen, these results should be considered exploratory.

Clean Water Act Section 303(d) Listing

Specific concerns regarding Colorado's approach to identifying waters impaired by nutrients include the following:

1) Colorado's narrative standard at 31.11(1)(a)(iv) requires that:

> "…state surface waters shall be free from substances attributable to human-caused point source or nonpoint source discharge in amounts, concentrations or combinations which, for all surface waters except wetlands…produce a predominance of undesirable aquatic life."

This narrative standard could be the basis for identifying waters impaired by nutrients using a benchmark concentration (e.g., the draft Section 31.17(2), (3), and (4) values). However, our understanding is that the Division does not intend to assess waters impaired by nutrients using this narrative standard. Instead, the Division will only assess segments where *numeric* standards for nutrients, chlorophyll, pH, or dissolved oxygen have been applied to the individual segment, or sufficient biological monitoring information is available to complete an assessment using new WQCC Policy 10-1.

High concentrations of nutrients and chlorophyll have been measured at many waters that currently lack numeric standards for nutrients and chlorophyll-a. We are very concerned that Colorado is not planning to identify waters impaired by nutrients using Section 31.11 narrative standards, since, under the Division's draft approach, many waters will continue to lack numeric standards until at least 2022.

2) If the State continues to not assess waters for nutrients based on an interpretation of narrative standards, 40 CFR 130.7 grants EPA the authority to disapprove the State's CWA Section 303(d) list or add waters to the list based on an EPA analysis of ambient nutrient concentration data. Consistent with the CWA and Colorado's approved water quality standards, EPA will review the State's impaired waters list and, if necessary, add waters that are not included but are impaired by nutrients.

Regulation #85

Point Sources

Specific concerns regarding Colorado's proposed approach to developing effluent limits for nutrients include the following:

1) Attaining and Maintaining Applicable Water Quality Standards: Sections 301 and 402 of the CWA require National Pollutant Discharge Elimination Systems (NPDES) permits to include effluent limitations as needed for discharges to meet water quality standards. 40 CFR 122.44(d), which applies to states via 40 CFR 123.25(a), requires a permit-issuing agency to: (1) determine whether point source discharges will cause, have a reasonable potential to cause, or contribute to an excursion beyond applicable water quality criteria; and (2) set water quality-based effluent limitations in permits when the agency makes an affirmative determination. The regulation applies whether the relevant criteria are expressed numerically or in a narrative form.

   Based on our review of the Statewide Control Regulation and discussions with the workgroup, we are concerned that the "technology-based" effluent limits proposed for Colorado dischargers would be used in lieu of water quality-based effluent limits and would not comply with section 122.44(d). The basis for this concern is that the nutrient values contained in Regulation #31 suggest that, in some cases, effluent limits more than an order of magnitude below the proposed effluent limits for total phosphorus and total inorganic nitrogen are necessary to ensure protection of the designated use. For example, the Control Regulation would establish a technology-based effluent limit for existing POTWs of 1000 µg/L for total phosphorus, which is significantly higher and less protective than the Division's range of total phosphorus concentrations of 20 µg/L to 160 µg/L associated with protection of aquatic life / recreational use support.

   In order to ensure that permits will attain applicable narrative water quality standards and protect designated uses, EPA expects that the Division will follow 40 CFR 122.44(d) and Colorado's Permitting Rules that incorporate 122.44(d) when issuing permits for nutrient

discharges. Specifically, these Rules require an analysis of the reasonable potential of a discharger to cause or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality and the control of these pollutants by establishing permit limits that protect the designated use. EPA may exercise its authority to review, provide comments and recommendations, or object to a permit based on these same provisions.

2) Methods for Developing Technology-Based Effluent Limits: The Draft Control Regulation establishes technology-based effluent limits for nutrient discharges from publicly operated treatment works (POTWs) and from dischargers other than POTWs. The statutory requirement for such technology-based limits is found in sections 301(b)(1)(A) & (B) of the CWA, as implemented in 40 CFR 125.3. Technology limits for POTWs must be based either on secondary treatment technology or best practicable waste treatment technology, which EPA treats as equivalent to best practicable control technology currently available (BPT). 40 CFR 125.3(a)(1). Technology limits for nutrient dischargers other than POTWs must be based on the best available economically achievable control technology (BAT). 40 CFR 125.3(a)(2)(v). Both BPT limits for POTWs and BAT limits for other dischargers must be imposed through the application of EPA-promulgated effluent limitations, on a case-by-case basis using Best Professional Judgment (BPJ), or through a combination of the two. The factors for establishing limits based on BPJ are defined in 40 CFR 125.3(d). EPA understands that the State is performing a cost-benefits study that appears to meet the economic analysis factor defined in 40 CFR 125.3(d).

   Although the regulations allow for development of technology limits for POTWs based on a case-by-case basis using BPJ, the use of these technology limits in Regulation #85 in lieu of water quality standards that identify use protection and the establishment of permit limits to control pollutants is not appropriate, as stated previously in Item #1 of this section.

3) Compliance Schedules: The Draft Control Regulation includes compliance schedules as an option to allow dischargers time to meet the technology-based limits established in the Control Regulation. EPA's regulations initially allowed POTWs and dischargers other than POTWs a number of years to comply with their technology-based effluent limitations. However, since March 31, 1989, both POTWs and dischargers other than POTWs have been required to achieve technology-based effluent limitations from the date of permit issuance. This statutory mandate is absolute and compliance schedules cannot be used to achieve technology limits after this date. Therefore, the use of compliance schedules to meet the State developed technology limits based on BPJ are not in compliance with EPA regulations.

   However, compliance schedules can be used to meet water quality-based effluent limits (Hanlon 2007)[1]. As discussed in the 1992 Environmental Appeals Board decision Star-Kist Caribe, Inc., 3 E.A.D. 172 (1990), compliance schedules for water quality-based

[1] May 10, 2007 EPA Memorandum "Compliance Schedules for Water Quality-Based Effluent Limits in NPDES Permits" from James A. Hanlon to Alexis Strauss

effluent limits must be authorized by State water quality standards or implementing regulations.

Nonpoint Sources

We commend the Division for including accountability for meeting nutrient pollution reduction goals for nonpoint sources; including the potential for development of involuntary approaches should voluntary measures prove insufficient. This approach is consistent with section 319 (b)(2)(B) of the CWA.

We are concerned that the definition of best management practice (BMP) is insufficiently broad to capture most BMPs for nonpoint sources, especially agriculture and silviculture. The current definition is consistent with the definition from EPA's Urban Runoff Glossary, which focuses on a subset of BMPs applicable primarily to NPDES permit holders. We request that the definition be broadened to include BMPs for all sources of nutrient pollution. The Glossary of Terms on EPA's watershed planning web page offers the following definition:

> "*Best Management Practice (BMP):* A method that has been determined to be the most effective, practical means of preventing or reducing pollution from nonpoint sources."

This language could be added to the current definition, if desired.

Resolving EPA's Concerns

We acknowledge the challenges associated with developing WQS, listing, and permitting strategies for nutrients are very difficult to negotiate. They include the costs of complying with protective WQS and addressing the sheer number of waters that may be affected by nutrients and nutrient controls. Therefore, we are interested in discussing alternative approaches that EPA could support such as:

- Flexibility to phase the adoption of protective WQS. For example, EPA may be able to support an initial focus on WQS for high priority parameters, waters and/or uses, if the State's overall longer term approach provides reasonable certainty that CWA requirements will be met.

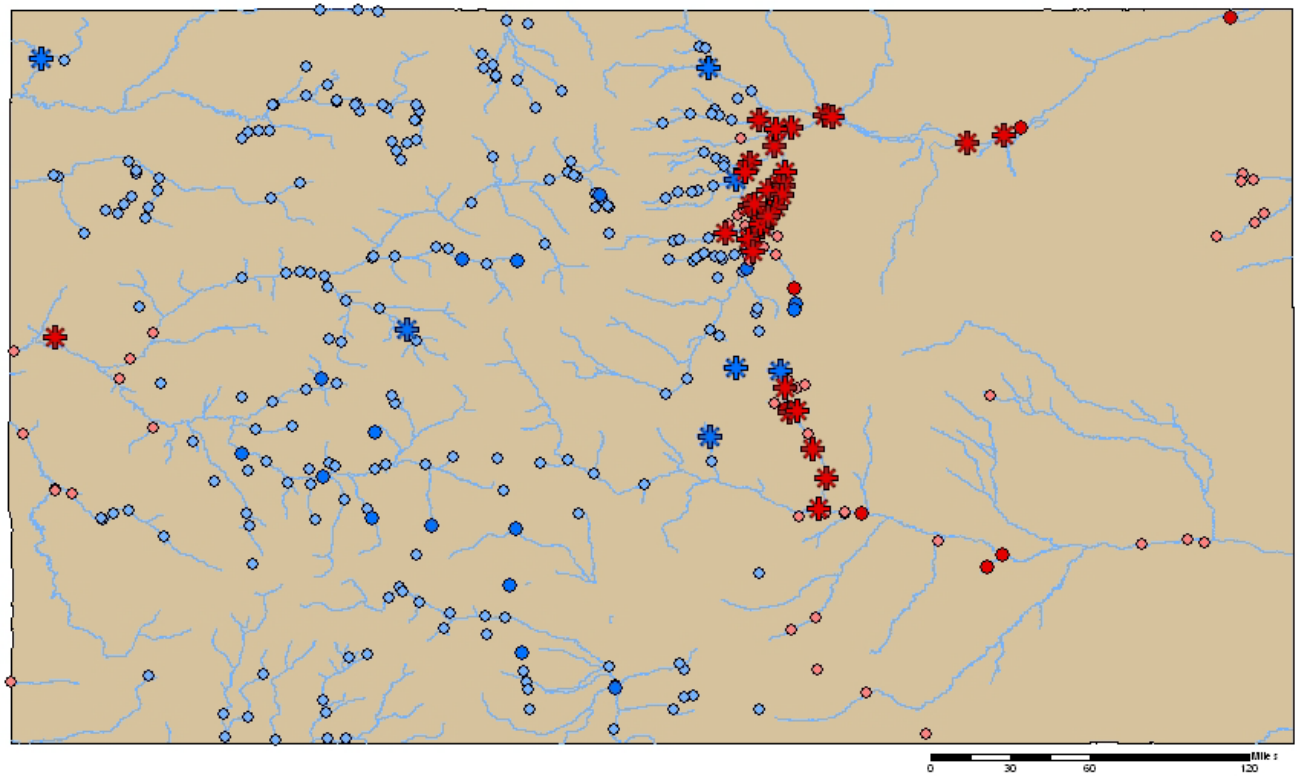
- Alternatives for identifying waters impaired by nutrients using numeric *and* narrative standards.

- Options for developing WQBELs and permit compliance schedules that will achieve WQBELs. For example, the Hanlon 2007 memorandum discusses state flexibility to develop compliance schedules that extend over multiple permit terms.

- Tools for dealing with WQBELs that are not feasible to achieve. For example, EPA may be able to support use of WQS variances, provided a defensible supporting analysis is developed which demonstrates that attaining the designated use is not feasible. Although

WQS variances are typically justified with facility-specific information (especially where based on economic analyses), it might be possible to develop defensible WQS variances for categories of discharges that could be implemented with lower transaction costs.

Stream Phosphorus Values in Colorado



Stream Nitrogen Values in Colorado