COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT

Water Quality Control Commission

REGULATION NO. 31 - THE BASIC STANDARDS AND METHODOLOGIES FOR SURFACE WATER

5 CCR 1002-31

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31.17 NUTRIENTS

(a) Overview

This section establishes interim numeric values for phosphorus, nitrogen and chlorophyll *a* and also sets forth provisions regarding the use of these numeric values for the adoption of water quality standards.

(b) Interim Phosphorus Values

Table 1 Interim Total Phosphorus Values	
Lakes and Reservoirs, cold, > 25 acres	25 ug/L [1]
Lakes and Reservoirs, warm > 25 acres	83 ug/L [1]
Lakes and Reservoirs, < = 25 acres	RESERVED
Rivers and Streams - cold	110 ug/L [2]
Rivers and Streams - warm	170 ug/L [2]
[1] summer (July 1-September 30) average Total Phosphorus (ug/L) in the mixed layer of lakes (median of multiple depths), allowable exceedance frequency 1-in-5 years. [2] annual median Total Phosphorus (ug/L), allowable exceedance frequency 1-in-5 years.	

(c) Interim Nitrogen Values (Effective ~~May 31, 2017~~December 31, 2027)

Table 2 Interim Total Nitrogen Values	
Lakes and Reservoirs, cold, > 25 acres	426 ug/L [1]
Lakes and Reservoirs, warm, > 25 acres	910 ug/L [1]
Lakes and Reservoirs, < = 25 acres	RESERVED
Rivers and Streams - cold	1,250 ug/L [2]
Rivers and Streams - warm	2,010 ug/L [2]
[1] summer (July 1–September 30) average Total Nitrogen (ug/L) in the mixed layer of lakes (median of multiple depths), allowable exceedance frequency 1-in-5 years. [2] annual median Total Nitrogen (ug/L), allowable exceedance frequency 1-in-5 years.	

(d) Interim Chlorophyll *a* Values

Table 3 Interim Chlorophyll *a* Values		
Waterbody type	.	DUWS
Lakes and Reservoirs, cold, > 25 acres	8 ug/L [a]	5 ug/L [c]
Lakes and Reservoirs, warm, > 25 acres	20 ug/L [a]	5 ug/L [c]
Lakes and Reservoirs, < = 25 acres	RESERVED	5 ug/L [c]
Rivers and Streams - cold	150 mg/m2 [b]	

Rivers and Streams - warm	150 mg/m2 [b]

[a] summer (July 1- September 30) average chlorophyll a (ug/L) in the mixed layer of lakes (median of multiple depths), allowable exceedance frequency 1-in-5 years.

[b] summer (July 1-September 30) maximum attached algae, not to exceed.

[c] 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.

(e) Use of Interim Phosphorus Values for Standards Adoption

Prior to December 31, 2027 the values set forth in subsection (b) above will be considered for the adoption of water quality standards for specific water bodies in Colorado in the following circumstances.

(i) Waters located upstream of

(A) all permitted domestic wastewater treatment facilities discharging prior to May 31, 2012 or with preliminary effluent limits requested prior to May 31, 2012,

(B) cooling tower discharges, and

(C) any non-domestic facility subject to Regulation #85 effluent limits and discharging prior to May 31, 2012.

(ii) Circumstances where the Commission has determined that adoption of numerical standards is necessary to address existing or potential nutrient pollution because the provisions of Regulation #85 will not result in adequate control of such pollution.

(f) ~~and~~ Chlorophyll *a* Values for Standards Adoption

Prior to ~~May 31, 2022~~December 31, 2022, the values set forth in subsection ~~(b) and~~ (d) above will be considered for the adoption of water quality standards for specific water bodies in Colorado in the following circumstances.

(i) ~~Headwaters~~ Waters located upstream of

(A) all permitted domestic wastewater treatment facilities discharging prior to May 31, 2012, or with preliminary effluent limits requested prior to May 31, 2012, ~~and~~

(B) cooling tower discharges, and

(~~B~~C) any non-domestic facility subject to Regulation #85 effluent limits and discharging prior to May 31, 2012.

(ii) Discretionary Application of the Values for Direct Use Water Supply (DUWS) Lakes and Reservoirs. The Commission may determine that a numerical chlorophyll standard is appropriate for specific water bodies with this sub-classification after consideration of the following factors:

(A) Whether the public water system using the lake or reservoir as a raw water supply experiences impacts attributed to algae on an intermittent or continual basis;

(B) Whether there are lake or reservoir use restrictions in place that recognize the importance of the reservoir as a water supply;

(C) Whether application of this value appropriately balances protection of all classified uses of the lake or reservoir;

(D) Other site specific considerations which affect the need for a more protective value.

(iii) Circumstances where the Commission has determined that adoption of numerical standards is necessary to address existing or potential nutrient pollution because the provisions of Regulation #85 will not result in adequate control of such pollution.

(~~f~~g) Use of Interim Nitrogen Values for Standards Adoption

After ~~May~~ December 31, 2027~~2017 and prior to May 31, 2022~~, the values set forth in subsection (c) above will be considered for the adoption of water quality standards for specific water bodies in Colorado in the circumstances identified in subsection (e)(i) and (i~~iii~~) above.

(~~g~~h) Phase 2 Application of Numeric Standards

After December 31, 2022, the values set forth in subsection (d) will be considered by the Commission when applying numeric standards to individual segments. After December 31, 2022, the values set forth in subsections (b) and (c) for lakes and reservoirs will be considered by the Commission when applying numeric standards to Direct Use Water Supply (DUWS) reservoirs and lakes or lakes and reservoirs with public swim beaches that meet the definition of natural swimming areas in C.R.S. § 25-5-801. After ~~May~~ December 31, ~~2022~~2027, the values set forth in subs~~S~~ection (b)~~,~~ and (c)~~, and (d)~~ will be considered by the Commission when applying numeric standards to individual segments where total phosphorus and total nitrogen standards have not yet been adopted.

For each individual segment where numeric standards for total phosphorus, total nitrogen, and chlorophyll *a* have not yet been adopted, numeric standards will be adopted by the Commission where necessary to:

(i) protect the assigned use classifications, and

(ii) comply with the Colorado Water Quality Control Act and the Federal Act.

(~~h~~i) Site-Specific Flexibility to Consider Alternatives to the Interim Values

In accordance with the preceding subsection, both before and after ~~May~~ December 31, ~~2022~~2027, in considering adoption of numeric standards for specific water bodies in Colorado, the Commission may review relevant site-specific factors and conditions in determining what numeric standards are most appropriate, and may adopt standards, either more or less stringent than the 31.17(b)(c) and (d) interim values.

(i) Where evidence demonstrates that an alternative numeric standard would be more appropriate for the protection of use classifications, the Commission may consider assigning ambient quality-based standards or site-specific criteria based standards as outlined in 31.7(1)(b)(ii-iii).

(ii) Where it has been demonstrated that interim values are not feasible to achieve, the Commission may consider modifying the use classification as outlined in Section 31.6(2).

(iii) Where the conditions established in Section 31.7(3)(a) are met, the Commission may consider granting a temporary modification.

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31.55 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY AND PURPOSE; OCTOBER 10, 2017 RULEMAKING; EFFECTIVE DECEMBER 30, 2017

The provisions of sections 25-8-202(1)(b), 25-8-204; and 25-8-402, C.R.S., provide the specific statutory authority for adoption. The Commission also adopted, in compliance with section 24-4-103(4) C.R.S., the following statement of basis and purpose.

BASIS AND PURPOSE:

Phase 2 of Colorado's Nutrients Management Program: In this rulemaking, the commission took action to put into place the second phase of Colorado's strategy to address current and potential future nutrient pollution of Colorado surface waters.

In 2012, the commission adopted interim numerical values for phosphorus, nitrogen, and chlorophyll *a* as one part of a two-part strategy. Since 2012, the commission has adopted phosphorus numeric values upstream of domestic discharges, cooling tower discharges, and non-domestic discharges subject to Regulation #85 effluent limitations in segments throughout the state in accordance with 31.17. The commission has also adopted the direct use water supply classification and standard in accordance with 31.17. In 2016, EPA approved the interim numeric values for chlorophyll *a*, approved with recommendations the numeric values for phosphorus and nitrogen for lakes and reservoirs, and took no action with respect to the interim numeric values for phosphorus and nitrogen for rivers and streams or the delayed effective dates.

In 2012, the commission envisioned that the interim numeric values in 31.17 could be used for the adoption of water quality standards for any surface waters in Colorado following May 31, 2022. However, EPA's action in 2016 has led the commission to consider modifications to its nutrients reduction strategy.

First, the commission noted that EPA had approved the interim numeric values for chlorophyll *a*, and the commission determined that the 2022 timeframe is appropriate for adoption of chlorophyll *a* standards. The adoption of chlorophyll *a* standards throughout the state in the 2022 timeframe is included in Colorado's nutrients management plan that was discussed during the proceedings for this hearing. Also discussed in that plan is the commission's anticipation that during Phase 2 of Colorado's nutrients management approach, the chlorophyll *a* standards will be implemented through the TMDL process for waters listed on the 303(d) list for impaired waters.

Second, the commission noted that EPA approved with recommendations the numeric values for phosphorus and nitrogen for lakes and reservoirs. Because of the EPA recommendations regarding the interim phosphorus and nitrogen values for lakes and reservoirs, additional analysis is needed before applying the interim values, particularly for warm-water lakes and reservoirs. The commission determined that the division should revisit the phosphorus and nitrogen values for lakes and reservoirs, and should prioritize the development of numeric phosphorus and nitrogen standards based on protection of public health. Therefore, as reflected in the nutrients management plan, the commission anticipates that in the 2022 timeframe the division will propose phosphorus and nitrogen standards for lakes and reservoirs that are direct use water supply reservoirs and where there are public swim beaches. With the exception of direct use water supply reservoirs and lakes and reservoirs with public swim beaches, the commission has decided to further delay the effective dates of the phosphorus and nitrogen numeric values below dischargers to 2027.

Third, the commission noted that EPA took no action with respect to the interim numeric values for phosphorus and nitrogen for rivers and streams. The commission determined more time is needed to revisit the numeric values for phosphorus and nitrogen for rivers and streams, and anticipates that revised standards will be developed and considered in the 2027 timeframe. The commission acknowledges that removing dissolved organic nitrogen to low levels is a current technological challenge. The commission

recognizes this issues will need to be considered in future policy reviews and rulemaking hearings regarding nutrients along with future technological advances.

The commission also anticipates that a hearing will be held in 2020 to consider impacts from nonpoint sources and potential strategies for nonpoint source control. As part of implementing the provisions of Regulation 85 at subsection 85.5(5), Nonpoint Source Discharges, the Commission determined that considerable progress has been made to date by the Division, the Colorado Monitoring Framework Agricultural Task Force, the Lower Arkansas Valley Water ~~Conservation~~ Conservancy District, and other partnering entities through dissemination of nutrient control-related information and tools for voluntary use by the agricultural community. This model of collaborative outreach, education, and engagement has been made possible through Division leadership and funding to support these efforts, as well as the proactive responsiveness of entities who work directly with agricultural producers. The Commission encouraged these collaborative activities to continue with a goal of documenting measurable results for presentation at the next triennial review.

In addition, while the commission's traditional approach would have meant that the commission would have considered updated standards for ammonia and selenium in 2021, the current intent of the commission is to delay adoption of revised standards for selenium and ammonia until 2027 as well. The long-term strategy is that the commission will consider the adoption of revised standards for all of these constituents for all water bodies in the state in rulemaking hearings in 2027. The commission anticipates that over the course of the next 10 years, the division will work to revise the standards for ammonia, selenium, nitrogen and phosphorus for rivers and streams, while at the same time will develop feasibility information to assist dischargers with proposing discharger specific variances, which will also take into consideration the treatment challenges of treating for nutrients, selenium, and ammonia, as well as temperature. In order to implement standards as soon as practical, the commission will not rely on the basin review process for adoption of site-specific standards over the course of several years. Instead, in hearings in 2027, the commission will consider site-specific standards and discharger-specific variances for all of these parameters for all waters bodies of the state. After adoption of revised numeric nutrient standards in 2027 in rivers and streams, the commission intends that water quality based effluent limits will be implemented into permits after December 31, 2027.

While the commission has decided to delay the adoption of numeric nutrient values to 2027, it is committed to making additional progress towards nutrient reductions in Colorado during this second phase. The commission believes that the best way to make progress at this time is through an incentives program to encourage early reductions of nutrients. The incentives program will encourage facilities to make voluntary reductions of nutrients, and in exchange the facility will receive an extended compliance schedule as well as certainty about the year in which the facility will need to meet water quality based effluent limits. An extended compliance schedule means the facility will be given additional time to comply with water quality based effluent limits that would be based on the numeric values adopted in 2027. The commission believes that more progress can be made through an incentives program than through mandating reductions by medium sized facilities or facilities in a low priority watershed. For example, the commission believes that even if only the 15 largest dischargers took advantage of the incentives program, and if each of those facilities reduced its nitrogen 20% below the Regulation #85 effluent limits, the resulting load reduction in the state would be three times larger than what would be achieved if the Regulation #85 effluent limits were applied to all domestic wastewater treatment facilities with delayed implementation as identified in 85.5(1)(a)(ii). The commission believes this is the best current policy option to make effective progress in addressing nutrients management in Colorado at this time. The commission believes that reducing the phosphorus or nitrogen effluent limits in Regulation #85, or to apply those effluent limits to more facilities would result in substantially less progress in controlling nutrients in the next 10 years than will the incentive program. However, the commission does intend to evaluate the amount of improvement that occurs through the incentive program, and may revisit this approach and make additional modifications to its nutrients reduction strategy if this voluntary incentives program does not result in reductions as anticipated.

To achieve this goal of early nutrient reduction, the commission has adopted a voluntary incentive program. Participation in the program is entirely voluntary. The program does not require wastewater

treatment facilities to implement a specific treatment technology, but it is anticipated that nutrient reductions will be achieved through BNR optimization, a water quality trade, a source reduction plan, watershed nutrient reductions, or capital improvements. A facility that achieves early reduction of nutrients will be offered an incentive in the form of an extended CDPS permit compliance schedule, which increases the number of years that the wastewater facility has to meet the water quality based effluent limits after 2027. The commission expects that the incentive will provide wastewater treatment facilities additional time to identify funding sources necessary to make the capital infrastructure investment in tertiary treatment after 2027.

Regulatory framework for voluntary incentive program: The voluntary incentive program is outlined in Regulation 85.5(1.5). The commission intends that implementation of this program will be accomplished in conjunction with Commission Policy 17-1 that was adopted concurrent with this hearing. Permittees who wish to participate in the incentive program are required to submit a nutrient reduction plan on or before December 31, 2019, and annual nutrient monitoring reports to the division on or before March 31st of each year beginning in 2020. In order to qualify for the incentive program, the permittee must reduce nitrogen and/or phosphorus discharges to levels below those in Regulation #85 by December 31, 2026.

The annual reporting requirement provides the division with an opportunity to review a permittee's progress in reducing nutrient levels below those in Regulation #85 and to assess how those reductions relate to the incentives offered in Commission Policy 17-1. If a permittee is able to make early reductions in its discharge of nutrients, the permittee will qualify for an incentive which gives it additional time to comply with numeric nutrient values in Regulation #31, and Regulations #32 through 38 that are anticipated to be adopted in 2027. The amount of additional time granted will depend on the amount of nutrient concentration reduction that the wastewater facility achieves between 2019 and 2026.

The commission considered whether permittees subject to TMDLs should still be able to participate in the incentive program due to the fact that there is an impaired waterbody and the incentive program will result in participants receiving an extended period of time to meet their wasteload allocations. In particular, the commission heard concerns about participation by the dischargers subject to the Barr Milton TMDL. The commission ultimately decided that dischargers subject to a TMDL should still be able to participate in the incentive program because it will help drive earlier reductions. However, in the case of the dischargers subject to the Barr Milton TMDL, the commission decided that in order to continue to incentivize early nutrient reductions by those dischargers but yet address concerns about additional delay in implementation of the phosphorus wasteload allocations, that the method for earning incentive credit for total phosphorus reduction would be focused on further phosphorus reductions in line with the Barr Milton TMDL phosphorus targets. During the first review of Policy 17-1 which would typically take place in 2020, the commission will consider whether to extend the method that applies to the dischargers with a wasteload allocation pursuant to the Barr Milton TMDL to other dischargers within the Barr Milton watershed or even potentially more broadly. Should the division, based on discussions with dischargers, determine that consideration of this change should occur prior to the deadline for opting into the incentive program on December 31, 2019, the division can request that the commission consider changes prior to December 31, 2019.

The division will use Commission Policy 17-1 to make a determination about the amount of time that a permittee participating in the incentive program should be granted when it renews the permittee's CDPS permit after 2027. The division will rely on the nutrient incentives program annual reports in making this determination. If a permittee achieves early reduction of nutrients, it will be granted a compliance schedule in accordance with Commission Policy 17-1. Such compliance schedule may be revised or terminated if the division determines, under section 25-8-307, C.R.S., that the discharge or continued discharge of nutrients by an incentive program participant constitutes a "clear present and immediate danger to the health or livelihood of members of the public," or, under section 61.8(8)(a)(iv) of Regulation #61, that the "permitted activity endangers human health or the classified or existing uses of state waters and can only be regulated to acceptable levels by permit modification or termination. Examples of situations that could trigger the division's exercise of this authority could include but are not limited to a toxic algae bloom in receiving waters downstream of a wastewater treatment facility or the presence of pollutants that cause or contribute to unacceptably high concentrations of disinfection byproducts in

drinking water treatment facilities with intake locations downstream of a wastewater treatment facility. They could also include situations where nutrient levels in receiving/downstream waters have reached extreme highs or have increased two or threefold since 2017, where streams or reservoirs have repeated algae blooms producing toxins in multiple years, or where there is demonstrable and significant impact to aquatic life or other animals that is attributable to nutrients.

Based on the environmental benefit anticipated from the voluntary nutrient reductions under the incentive program, the commission expects these circumstances to be rare. The commission recognizes that the voluntary nutrient reductions that will result from the incentive program participants may reduce the severity of the event by reducing nutrient concentrations below those that would otherwise have been permitted. The commission anticipates that in such a circumstance the division will evaluate all of the sources and work to control all of the sources concurrently or in succession, depending on the most appropriate approach in that particular case.

A permittee or other interested parties can challenge the division's determination implementing the voluntary incentive compliance schedule as part of the CDPS permit renewal schedule. If the annual nutrient monitoring reports demonstrate that a permittee has achieved early nutrient reductions in accordance with Commission Policy 17-1, there will be a presumption that a permittee is entitled to the additional time allotted.

It is the commission's determination that this approach will achieve the maximum practical degree of water quality in state waters consistent with the welfare of the state, and that this approach maximizes the beneficial uses of state waters while bearing a reasonable relationship to the economic, environmental, energy, and public health costs and impacts to the public. The commission intends that the incentive program as adopted in 2017 will be maintained for the participants through 2027. The commission will review the incentive program as part of its triennial process in 2022. If the commission determines that additional nutrient reductions beyond those that result from the incentive program are necessary during the program period, the commission intends that these additional reductions will be accomplished first through alternative regulatory mechanisms and only as a last resort will the commission change the incentive program.

Headwaters: In 2012, the commission adopted language in section 31.17(e)(i) indicating that the interim phosphorus and chlorophyll *a* values would only be considered for adoption in "headwaters located upstream of" certain domestic and non-domestic wastewater treatment facilities. The use of the term "headwaters" led to discussion in the 2013 basin hearing. In 2013, the commission determined that there was no need for a demonstration that waters are "high quality" headwaters in order to adopt phosphorus standards. In 2014, the commission made a policy determination not to apply the interim values below a facility with a cooling tower operated by Tri-State Generation and Transmission. The commission made changes to section 31.17(e)(i) in order to reflect these policy decisions as well as to avoid confusion by continuing to use the term "headwaters," which carries with it meaning and connotation in other contexts.

PARTIES TO THE RULEMAKING

1. City of Boulder, Centennial Water and Sanitation District, Littleton-Englewood Wastewater Treatment Plant, Metro Wastewater Reclamation District and Colorado Wastewater Utilities Council
2. AF CURE
3. City of Black Hawk and Black Hawk/Central City Sanitation District
4. Colorado Monitoring Framework
5. Eagle River Water and Sanitation District
6. Supervisory Committee of the Littleton/Englewood Wastewater Treatment Plant
7. Colorado Springs Utilities
8. North Front Range Water Quality Planning Association
9. Farmer's Reservoir and Irrigation Company
10. City of Fort Collins
11. Town of Fraser
12. MillerCoors, LLC

13. Plum Creek Water Reclamation Authority
14. Public Service Company of Colorado
15. City of Pueblo
16. Silverthorne/Dillon Joint Sewer Authority
17. Town of Telluride
18. Tri-Lakes Wastewater Treatment Facility
19. Tri-State Generation and Transmission Association, Inc.
20. Upper Blue Sanitation District
21. Dominion Water and Sanitation District
22. Parker Water and Sanitation District
23. City and County of Broomfield
24. Leprino Foods Company
25. Swift Beef Company