

# STATE OF COLORADO

John W. Hickenlooper, Governor  
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Executive Director and Chief Medical Officer

## **WATER QUALITY CONTROL COMMISSION**

<http://www.cdphe.state.co.us/op/wqcc/index.html>

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**Colorado  
Department  
of Public Health  
and Environment**

## **NOTICE OF PUBLIC RULEMAKING HEARING BEFORE THE COLORADO WATER QUALITY CONTROL COMMISSION**

### **SUBJECT:**

For consideration of the adoption of revisions to the Basic Standards and Methodologies for Surface Water, Regulation #31 (5 CCR 1002-31) and the adoption of a new Nutrients Management Control Regulation, Regulation #85 (to be codified at 5 CCR 1002-85).

Proposed revisions to Regulation #31 and proposed versions of new Regulation #85, with proposed Statements of Basis and Purpose language, have been submitted by the following:

- Exhibit 1 – Regulation #31: Water Quality Control Division (Division);
- Exhibit 2 – Regulation #85: Water Quality Control Division (Division);
- Exhibit 3 – Regulation #31: Conservation Groups
- Exhibit 4 – Regulation #85: Conservation Groups

In Exhibit 1, proposed new language is shown with double-underlining and proposed deletions are shown with ~~strikeouts~~. Because all proposed language in Regulation #85 is new, Exhibit 2 is provided as clean text. In Exhibits 3 and 4, proposed revisions are shown relative to the Exhibit 1 and 2 proposals, respectively. Any alternative proposals related to the regulatory revisions, draft control regulation and/or draft statements of basis and purpose proposed in Exhibits 1 through 4 and developed in response to those proposals will also be considered.

### **HEARING SCHEDULE:**

DATE: Monday, March 12, 2012  
TIME: 10:00 a.m.  
PLACE: Florence Sabin Conference Room  
Department of Public Health and Environment  
4300 Cherry Creek Drive South  
Denver, Colorado 80246

### **PUBLIC PARTICIPATION ENCOURAGED:**

The Commission encourages all interested persons to provide their opinions or recommendations regarding the matters to be addressed in this rulemaking hearing, either orally at the hearing or in writing prior to or at the hearing. Although oral testimony from those with party status (see below) and other interested persons will be received at the hearing, the time available for such oral testimony may be limited. Written submissions prior to the hearing are encouraged, so that they can be distributed to the Commission for review prior to the hearing. Oral testimony at the hearing should primarily summarize

written material previously submitted. The hearing will emphasize Commission questioning of parties and other interested persons about their written prehearing submittals. Introduction of written material at the hearing by those with party status or mailing list status (see below) generally will not be permitted. The Commission requests that all interested persons submit to the Commission any available information that may be relevant in considering the noticed proposals.

The Commission encourages informal discussions among the parties, the Water Quality Control Division and other interested persons prior to the hearing, in an effort to reach consensus or to develop proposed resolutions of issues and/or narrow the issues potentially in dispute. **The Commission strongly encourages that any multi-party/Division proposals for the resolution of issues (including proposed Statement of Basis and Purpose language whenever feasible) be submitted as part of the administrative record as early as possible, but at least by the prehearing conference.** To help facilitate discussions, the following contact information is provided:

- Water Quality Control Division: Reg. #31 - Sarah Johnson; [sarah.johnson@state.co.us](mailto:sarah.johnson@state.co.us)  
303-692-3609  
Reg. #85 - Dave Akers; [dave.akers@state.co.us](mailto:dave.akers@state.co.us)  
303-692-3591
- Conservation Groups: Melinda Kassen; [melindakassen@aim.com](mailto:melindakassen@aim.com)  
303-579-5453

#### PARTY STATUS/MAILING LIST STATUS:

Participation as a "party" to this hearing or acquisition of "mailing list status," will require compliance with section 21.3(D) of the Procedural Rules, Regulation #21 (5 CCR 1002-21). Mailing list status will allow receipt of all party documents (except individual exhibits more than five pages in length). It is not necessary to acquire party status or mailing list status in order to testify or comment. **For each request for party status or mailing list status, please provide the organization's name, a contact person, mailing address, phone number, fax number and email address if available.** Written party status or mailing list status requests are due in the Commission Office on or before:

DATE: Tuesday, December 20, 2011

TIME: 5:00 p.m.

A single copy of the party status or mailing list status request may be transmitted as an email attachment to [cdphe.wqcc@state.co.us](mailto:cdphe.wqcc@state.co.us), submitted by fax to 303-691-7702, mailed or otherwise conveyed so as to be received in the Commission Office no later than this deadline. PLEASE NOTE that, as indicated below, parties will have the option of distributing materials to other parties electronically, except in instances where a party has requested receiving hard copies of documents. Therefore, **anyone requesting party or mailing list status that wishes to receive hard copies of documents instead of emailed copies should so indicate in the party status/ mailing list status request so that this information can be included on the list distributed by the Commission Office.**

#### PREHEARING STATEMENTS:

**PLEASE NOTE** that for this hearing two separate deadlines for prehearing statements are established: (1) An original and 13 copies of **Proponents' Prehearing Statements** from **each proponent of revisions proposed in the exhibits attached to this notice**, including written testimony and exhibits providing the basis for the proposals, must be received in the Commission Office no later than **December 9, 2011**; and (2) an original and 13 copies of a **Responsive Prehearing Statement**, including any exhibits, written testimony, and alternative proposals of the Water Quality Control Division or **anyone seeking party status and intending to respond to the proponents' proposals** must be received in the Commission Office no later than **January 20, 2012**.

For each deadline, the required number of hard copies of documents must be received in the Commission office by the specified dates. These requirements are not satisfied by electronic

transmission of a facsimile copy or copies. However, **parties should also email a copy of their written documents to the Commission Office**, so that materials received can be posted on the Commission's web site. (Please email to [cdphe.wgcc@state.co.us](mailto:cdphe.wgcc@state.co.us).)

Because the December 9, 2011 deadline for Proponents' Prehearing Statements precedes the December 20, 2011 due date for party status/mailling list status requests, proponents must transmit copies of the Proponents' Prehearing Statements to all proponents and to the Attorney General's Office representatives for the Commission and the Division, in accordance with a **proponents list** provided by the Commission Office. Parties who are not proponents should acquire copies of the Proponents' Prehearing Statements from the Commission's website: <http://www.cdphe.state.co.us/op/wgcc/Hearings/Rulemaking/Nutrients/Nutrients.html>, or may contact the individual proponents to request hard copies.

Copies of Responsive Prehearing Statements and all subsequent filings for this rulemaking must be mailed or hand-delivered by the specific dates to all persons requesting party status or mailing list status and to the Attorney General's Office representatives for the Commission and the Division, in accordance with the **party status list** provided by the Commission Office following the party status/mailling list status deadline. **Alternatively, parties may email documents to those with party status or mailing list status by the specified dates**, except to those that the list distributed by the Commission Office identifies as requesting hard copies.

Also **note** that the Commission has prepared a document entitled **Information for Parties to Water Quality Control Commission Rulemaking Hearings**. A copy of this document will be mailed or emailed to all persons requesting party status or mailing list status. It is also posted on the Commission's web site at <http://www.cdphe.state.co.us/op/wgcc/PubPart/hbappc.pdf>. Following the suggestions set forth in this document will enhance the effectiveness of parties' input for this proceeding. **Please note the request that all parties submit two-sided copies of all hearing documents on three-hole punch paper.**

#### MAILING LIST STATUS COMMENTS:

Those requesting mailing list status shall provide written testimony, if any testimony is to be offered for the hearing, by the above deadline for responsive prehearing statements – i.e., **January 20, 2012**. Copies shall be submitted and distributed in the same manner as noted above for prehearing statements.

#### REBUTTAL STATEMENTS:

**Written rebuttal statements responding to the prehearing statements due on January 20, 2012 may be submitted by the Division or anyone seeking party status or mailing list status.** Any such rebuttal statements must be received in the Commission Office by **February 17, 2012**. An original and 13 copies of written rebuttal statements must be received in the Commission Office by this deadline, and submission of an emailed copy as noted above is strongly encouraged. In addition, copies of these documents must be mailed or hand-delivered by that date to all those requesting party status or mailing list status, and to the Attorney General's Office representatives for the Commission and Division. **Alternatively, parties may email documents to those with party status or mailing list status by this deadline**, except to those that the list distributed by the Commission Office identifies as requesting hard copies. No other written materials will be accepted following this deadline except for good cause shown.

#### PREHEARING CONFERENCE:

DATE: Wednesday, February 22, 2012  
TIME: 1:00 p.m.  
PLACE: Sabin Conference Room  
Department of Public Health and Environment  
4300 Cherry Creek Drive South  
Denver, Colorado 80246

**Attendance at the prehearing conference is mandatory for all persons requesting party status.** An opportunity may be available to participate in this prehearing conference by telephone. Persons wishing to participate by telephone should notify the Commission Office as early as possible, but no later than February 15, 2012.

SPECIFIC STATUTORY AUTHORITY:

The provisions of sections 25-8-202; 25-8-205; 25-8-304; 25-8-401; 25-8-402 and 25-8-501, C.R.S., provide the specific statutory authority for consideration of the regulatory amendments proposed by this notice.

Should the Commission adopt the regulatory language as proposed in this notice or alternative amendments, it will also adopt, in compliance with section 24-4-103(4) C.R.S., an appropriate Statement of Basis, Specific Statutory Authority, and Purpose.

NOTIFICATION OF POTENTIAL MATERIAL INJURY TO WATER RIGHTS:

In accordance with section 25-8-104(2)(d), C.R.S., any person who believes that the actions proposed in this notice have the potential to cause material injury to his or her water rights is requested to so indicate in the party status request submitted. In order for this potential to be considered fully by the Commission and the other agencies listed in the statute, persons must fully explain the basis for their claim in their responsive prehearing statement which is due in the Commission Office on the date specified above. This explanation should identify and describe the water right(s), and explain how and to what degree the material injury will be incurred.

Dated this 21<sup>st</sup> day of November at Denver, Colorado.

WATER QUALITY CONTROL COMMISSION

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Paul D. Frohardt, Administrator

**EXHIBIT 1**  
**WATER QUALITY CONTROL DIVISION**

**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)**

. . .

**31.9 FLOW CONSIDERATIONS**

**(1) Low Flow Exceptions**

Water quality standards shall apply at all times; provided, that in developing effluent limitations or other requirements for discharge permits, the Division shall normally define critical flow conditions using the following low-flow values:

- (a) Generally: the empirically based 30-day average low flow with an average 1-in-3 year recurrence interval (30E3) for chronic standards, ~~(except for temperature limitations, which use the empirically based 7-day average low flow with an average 1-in-3 year recurrence interval (7E3))~~, and the empirically based 1-day low flow with an average 1-in-3 year recurrence interval (1E3) for acute standards or the equivalent statistically-based flow.
- (b) Temperature limitations: the empirically based 7-day average low flow with an average 1-in-3 year recurrence interval (7E3), and the empirically based 1-day low flow with an average 1-in-3 year recurrence interval (1E3) for acute standards, or the equivalent statistically-based flow.
- (c) Total phosphorus and total nitrogen limitations: the median of the July 1 – Oct 31 daily average flows that can be expected to occur in the second driest year in a five year period.

**(2) Data Requirements**

The period of record for determining low flows shall be based on a minimum of ten years of flow data, except that, when ten years of data is not available, low flows may be determined, on a case-by-case basis, using a period of record of less than ten years. If more than ten years of flow data is available, it may be more appropriate to establish low flow conditions based on a longer period of record to more accurately reflect site specific conditions.

**(3) Streams With Rapid Flow Changes**

For streams with seasonal rapidly rising or falling hydrographs, the Division shall use, if so requested by a discharger, the procedure set forth in subparagraphs (a) through (e) below for calculating 30E3 values for those transitional flow periods of the year. For certain substances such as ammonia, the low flow exceptions may be based on periodic or seasonal flows as determined on a case-by-case basis by the Division.

- (a) Averaging Procedure – Calculation of 30-day Forward Moving Harmonic Means - Moving harmonic means shall first be calculated for each consecutive thirty-day period in the period of record being considered.
- (b) Calculate Annual 30E3 Value - Determine the annual 30E3 value using the procedure set forth in Appendix A using
  - (i) 30-day forward moving harmonic means, and
  - (ii) the excursion procedure for a 1-in-3 year recurrence interval.
- (c) Assigning Harmonic Means - Each 30-day harmonic mean shall then be assigned to a month. A harmonic mean shall be assigned to a specific month only if the harmonic mean is calculated using data for 15 or more days from that month.
- (d) Ranking of Harmonic Means - Harmonic means shall be ranked from the lowest to highest for each month of the year. The lowest harmonic mean for a month shall be used to establish the low flow value for that month using the procedure set forth in subparagraph (e) below.
- (e) Establishing Monthly 30E3 Low Flows – The low flow for a month shall be either the lowest harmonic mean assigned to that month (as determined in subparagraphs (c) and (d), above), or the annual low flow value (as determined in subparagraph (b), above), whichever is greater.

**(24) Waters Not Yet Classified**

Discharges to waters not presently classified must meet established effluent limitation regulations, the basic standards, antidegradation rule and control regulations. Effluent flows which reach a classified body of water, even though the discharge point is to a water not yet classified, must be of a quality which will not cause the standards of the classified body of water to be violated.

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### **31.13 STATE USE CLASSIFICATIONS**

Waters are classified according to the uses for which they are presently suitable or intended to become suitable. In addition to the classifications, one or more of the qualifying designations described in section 31.13(2), may be appended. Classifications may be established for any state surface waters, except that water in ditches and other manmade conveyance structures shall not be classified.

**(1) Classifications**

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**(d) Domestic Water Supply**

These surface waters are suitable or intended to become suitable for potable water supplies. After receiving standard treatment (defined as coagulation, flocculation, sedimentation, filtration, and disinfection with chlorine or its equivalent) these waters will meet Colorado drinking water regulations and any revisions, amendments, or supplements thereto.

**(i) Direct Use Water Supply Lakes and Reservoirs Sub-classification**

**(A) For the purpose of this section, "plant intake" means the works or structures at the head of a conduit through which surface water is diverted from a source (e.g., lake) into the treatment plant.**

(B) Direct Use Water Supply Lakes and Reservoirs (DUWS) are those water supply lakes and reservoirs where:

(I) There is a plant intake located in the lake or reservoir or a man-made conveyance from the lake or reservoir is used to provide raw water directly to a water treatment plant that treats and disinfects raw water, or

(II) The Commission, based on evidence in the record, determines that the reservoir will meet the criteria in 31.13(1)(d)(i)(B)(I) in the future.

(e) Wetlands

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### **31.17 Reserved- 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

<u>Table 1 Interim Phosphorus Values</u>	
<u>Lakes and Reservoirs, cold, &gt;25 acres</u>	<u>20 ug/L <sup>1</sup></u>
<u>Lakes and Reservoirs, warm &gt; 25 acres</u>	<u>80 ug/L <sup>1</sup></u>
<u>Lakes and Reservoirs, &lt;=25 acres</u>	<u>RESERVED</u>
<u>Rivers and Streams – cold</u>	<u>110 ug/L <sup>2</sup></u>
<u>Rivers and Streams - warm</u>	<u>170 ug/L <sup>2</sup></u>
<u><sup>1</sup> 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.</u>	
<u><sup>2</sup> annual median Total Phosphorus (ug/L), allowable exceedance frequency 1-in-5 years.</u>	

(c) Interim Nitrogen Values (Effective May 31, 2017)

<u>Table 2 Interim Total Nitrogen Values</u>	
<u>Lakes and Reservoirs, cold, &gt;25 acres</u>	<u>410 ug/L <sup>1</sup></u>
<u>Lakes and Reservoirs, warm, &gt; 25 acres</u>	<u>850 ug/L <sup>1</sup></u>
<u>Lakes and Reservoirs, &lt;=25 acres</u>	<u>RESERVED</u>
<u>Rivers and Streams – cold</u>	<u>1,250 ug/L <sup>2</sup></u>
<u>Rivers and Streams - warm</u>	<u>2,010 ug/L <sup>2</sup></u>
<u><sup>1</sup> summer (July 1–September 30) average Nitrogen (ug/L) in the mixed layer of lakes (median of multiple depths), allowable exceedance frequency 1-in-5 years.</u>	
<u><sup>2</sup> annual median Total Nitrogen (ug/L), allowable exceedance frequency 1-in-5 years.</u>	

(d) Interim Chlorophyll a Values

<u>Table 3 Interim Chlorophyll a Values</u>		
<u>Waterbody type</u>		<u>DUWS</u>
<u>Lakes and Reservoirs, cold, &gt;25 acres</u>	<u>8 ug/L<sup>b</sup></u>	<u>5 ug/L<sup>c</sup></u>
<u>Lakes and Reservoirs, warm, &gt; 25 acres</u>	<u>20 ug/L<sup>b</sup></u>	
<u>Lakes and Reservoirs, &lt;=25 acres</u>	<u>RESERVED</u>	
<u>Rivers and Streams - recreation</u>	<u>150 mg/m<sup>2 a</sup></u>	
<sup>a</sup> <u>mg/m<sup>2</sup> chlorophyll a of attached algae, not to exceed.</u>		
<sup>b</sup> <u>summer (July 1- Sept 30) average chlorophyll a in the mixed layer of lakes (median of multiple depths).</u>		
<sup>c</sup> <u>March-November average chlorophyll a (ug/L) in the mixed layer of lakes (median of multiple depths).</u>		
<u>allowable exceedance frequency 1-in-5 years..</u>		

(e) Use of Interim Phosphorus and Chlorophyll a Values for Standards Adoption

Prior to May 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) Waters located upstream of permitted point source dischargers with significant nutrient discharges, with preliminary effluent limits issued prior to May 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) Other unanticipated 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) Use of Interim Nitrogen Values for Standards Adoption

After May 31, 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 (ii) above.



## **WQCD PROPOSED**

### **31.50 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY AND PURPOSE; MARCH 12, 2012 RULEMAKING, FINAL ACTION APRIL 9, 2012, EFFECTIVE DATE ?????**

The provisions of sections 25-8-202, 25-8-401; 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:**

##### **I. Overview**

In this rulemaking hearing, the Commission has taken two major actions as part of a coordinated strategy to address current and potential future nutrient pollution of Colorado surface waters.

First, the Commission has adopted a new section 31.17 in the Basic Standards and Methodologies for Surface Water, Regulation #31, to address nutrients. Section 31.17 establishes interim numerical values for phosphorus, nitrogen and chlorophyll *a* that are deemed to be suitable for the protection of identified categories and subcategories of classified uses of Colorado surface waters. The adoption of the interim phosphorus, nitrogen and chlorophyll *a* values in section 31.17 is the culmination of a decade-long effort, involving hundreds of hours of staff time and numerous work group meetings with dozens of stakeholders. As discussed further below, these interim numerical values identify levels that the currently available scientific information indicates would be protective of the corresponding categories of beneficial uses. However, in this proceeding the Commission is not determining for which specific waters it may be necessary and appropriate to adopt standards based on these interim numerical values.

Second, the Commission has adopted a new Nutrients Management Control Regulation, Regulation #85. This new control regulation establishes numerical effluent limitations for domestic wastewater treatment plants and other wastewater dischargers that use active treatment and are likely to have significant levels of nutrients in their discharges. It also describes steps to be taken by other point source dischargers and nonpoint sources to address nutrients.

Finally, it establishes monitoring requirements for point source dischargers and a program aimed at monitoring surface waters for nutrients and related parameters. This effort is geared towards better characterizing nutrient sources, and current nutrient conditions, to help inform future regulatory decisions regarding nutrients.

The Commission has determined that the adoption of the requirements set forth in Regulation #85 are necessary to protect the public health, beneficial uses of Colorado waters, and the environment of the state, based on sound scientific and technical evidence in the record. As part of the overall nutrients management strategy described here, the Commission has decided to depart from its usual practice of adopting numerical table values in Regulation #31 and then, in subsequent hearings to review individual basin standards, broadly applying those values as segment-specific water quality standards throughout the State. Rather, the Commission believes that nutrient control in Colorado will proceed faster and more expeditiously by focusing the primary control efforts over the next decade on the technology-based approach described below and set forth in a new Nutrients Management Control Regulation. However, section 31.17 includes provisions that identify limited circumstances where the interim numerical values being established may be applied in the adoption of segment specific water quality standards during the next ten years. No new or revised water quality standards are established by this current rulemaking action. It is the Commission's determination that this approach will achieve the

maximum practical degree of water quality in the waters of the state consistent with the welfare of the state, and that this approach maximizes the beneficial uses of water while bearing a reasonable relationship to the economic, environmental, energy, and public health costs and impacts to the public.

The Commission has decided that this two-part strategy for addressing nutrients is the best current policy option to make effective progress in addressing nutrients management in Colorado at this time. The Commission believes that to rely on the usual standards-based approach alone (table value criteria, followed by segment-specific water quality standards, along with possible temporary modifications and discharger-specific variances, and then incorporation into discharge permits with compliance schedules) would result in substantially less progress in controlling nutrients in the next several years than will the technology-based approach set forth in new Regulation #85. At the same time, the Commission has retained the ability to use the new interim nutrient values established in Regulation #31 as the basis for the adoption of segment-specific water quality standards in appropriate, but limited, circumstances. Although it will inevitably take a significant number of years for existing wastewater dischargers to accomplish the planning, financing and construction of facilities to meet the new Regulation #85 effluent limitations, that implementation of nutrient controls is likely to be considerably more expeditious than that which would result from the delays and transaction costs associated with the traditional standards-based control efforts alone. Moreover, following the initial ten years of implementation of the provisions now being established the Commission will determine whether additional, more extensive standards adoption is necessary to address nutrient control needs that are not fully addressed by the technology-based requirements now being established.

## **II. Direct Use Water Supply Use Sub-classification and Application of Discretionary Value**

The Commission has adopted a new subsection 31.13(1)(d)(i) to create the Direct Use Water Supply Lakes and Reservoirs (DUWS) sub-classification of the domestic water supply use. This sub-classification will be applied to specific water bodies in certain narrowly-defined situations, as elaborated below. Colorado already broadly applied standards that provide significant protection for the water supply use. This new sub-classification supplements the existing protections of the water supply use by providing this Commission and future Commissions with the opportunity to adopt additional protection where it is needed in order to protect the use. For simplicity “lakes and reservoirs” hereinafter are referred to as “lakes”.

The intent of this sub-classification is to recognize special cases involving different vulnerabilities and risks that may not apply to all lakes covered under the broader water supply use classification. For the DUWS lakes, water flows (or is pumped) directly to the water treatment facility, where it is treated and then distributed to the service population for consumption; these water supplies are used directly. With the DUWS sub-classification, the Commission also preserves the ability to apply additional protection to lakes where convincing evidence has been presented that the lake will become a direct use water supply in the future.

### **A. Adoption of the Sub-classification**

The use is intended for lakes that deliver surface water directly to a drinking water treatment plant that treats and disinfects raw water. The term “plant” is interpreted broadly to include, in addition to any treatment facilities, any associated conduit, forebay, mixing basin or storage feature for the waters that have been withdrawn for use or treatment. In special circumstances it may also be appropriate to assign the use to a lake, with or without an intake, for which a showing has been made that the lake will be a DUWS in the future. Chemical disinfection is the critical process that forms the compounds that affect human health.

### **B. Discretionary Application of DUWS Value as Segment-Specific Standard**

The decision about the need to apply a specific value to protect the DUWS use will be made on a site-by-site basis, based on consideration of the factors set forth in subsection 31.17(e)(ii). The Commission may rely on a number of factors to determine whether a numerical chlorophyll standard (either the value in table 31.17(d) or a scientifically appropriate alternative) is appropriate to provide additional protection for DUWS lakes. One factor to be considered is whether the public water system using the lake as a raw water supply has experienced impacts that may be attributed to algae on an intermittent or persistent basis. Such impacts could include potential problems with disinfection by-products, taste-and-odor, or algal toxins.

Another factor is whether there are existing restrictions on use of the lake that recognize its importance as a water supply. The existence of use restrictions, such as prohibitions against swimming or boating, signifies that the community already made a special commitment to the value of source water protection.

A third factor is whether application of this standard appropriately balances protection of all classified uses of the lake. The Commission recognizes that the DUWS use may not be the sole use for which the lake is classified. For example, there is potential for competition between interests, like fishing, that benefit from higher algal abundance and DUWS that benefits from lower abundance. It is important to note, however, that the Commission's charge is to protect the individual uses, not "optimize" them. A balance must be found that prevents impairment of any of the uses with the consideration for the public policy ramifications of promoting one use over another. These balancing decisions will be made on a site-specific basis taking into account factors such as the holistic cost of preventing eutrophication versus the holistic costs of increased treatment.

And finally, in order to preserve the Commission's discretion in adopting standards, the decision may take into account any other site-specific considerations which affect the need for, or advisability of, a more protective value.

### **III. Nutrient Interim Values**

The Commission has adopted a new section 31.17 in the Basic Standards and Methodologies for Surface Water, Regulation #31, to address nutrients. Section 31.17 establishes numerical values for phosphorus, nitrogen and chlorophyll a that are deemed to be protective of identified categories and subcategories of classified uses of Colorado surface waters. However, as noted elsewhere, the Commission is not determining in this proceeding that it is necessary or appropriate to adopt these numerical values as water quality standards for any specific water bodies. The Commission has labeled these values "interim" to emphasize its intent to undertake further review of the evolving science regarding nutrients before applying numerical nutrient standards broadly to surface waters throughout Colorado. These values will be subject to review in subsequent triennial reviews.

#### **A. Development of Nutrient Values to Protect the Direct Use Water Supply**

The Commission adopted a chlorophyll a value of 5.0 ug/l to protect human health in DUWS lakes. The value is an average of samples taken from March through November. The duration of March through November was selected as a surrogate for an annual average. An average would be consistent with assessment of the relevant drinking water standards, but not all months can be sampled safely in every year (ice cover and access are problematic in the winter). In the context of ongoing triennial reviews, the Commission intends to review the scientific rationale related to the selection of a numerical value for DUWS set forth in Table 3. As discussed in Section II.B, above, the Commission further reiterates its intent to rely on a number of factors to determine whether a numerical chlorophyll standard (either the value in Table 31.17(d) or a

scientifically appropriate alternative) is appropriate to provide additional protection to a DUWS lake.

Improved protection of human health is achieved indirectly because, although chlorophyll itself is not toxic, algae produce the organic matter that can form disinfection by-products (DBPs). DBPs are formed when disinfectants used in water treatment plants react with natural organic matter present in the source water. Different disinfectants produce different types or amounts of DBPs.

Since 1974, when it was discovered that disinfection produces DBPs from naturally occurring organic matter, numerous toxicological studies (studies on the health effects from exposure to high dosages of contaminants usually involving animals in a lab) have shown several DBPs to be carcinogenic in laboratory animals. Some DBPs have also been shown to cause adverse reproductive or developmental effects in laboratory animals. As a result of these and other findings, EPA included DBP controls in its Stage 1 Disinfectants/Disinfection Byproducts Rule (1998). The Colorado Primary Drinking Water Regulations (5CCR 1003-1, table 2-5) include the maximum contaminant levels for DBPs. In addition, section 31.11 of the Basic Standards for Surface Water contains a water supply standard for total trihalomethanes (total THMs) of 80 µg/L. THMs are one of the classes of DBPs.

All lakes contain natural organic matter, which is the precursor for DBP formation. Algae contribute to this pool of natural organic matter, but are rarely the sole contribution. Natural organic matter also comes from external (i.e., watershed) sources. Nevertheless, the contribution from algae is significant in two ways – it is more difficult to treat and more easily controlled than natural organic matter from external sources.

The DUWS value was developed based on the relationship between THMs and dissolved organic carbon (DOC) produced by algae. The chemical properties of algal-derived DOC differ from the properties of DOC from the watershed. These properties are very important because they explain why algal-derived DOC is not amenable to removal with standard treatment of drinking water.

Generally, the amount of algal-derived DOC is proportional to the abundance of algae, which is measured as the chlorophyll concentration. Setting a limit on the amount of chlorophyll controls the production of algal-derived DOC and limits one source of precursors for the creation of cancer-causing compounds during water treatment.

The Commission adopted a numerical value of 5 µg/L for the average chlorophyll *a* concentration in DUWS lakes with the intent of controlling algal contributions to the formation of THMs. Evidence was presented that, based on the reactivity of algal-derived DOC (µg/THM per mg/DOC), a target threshold of 80 µg/L for the THM (ie the MCL) results in a threshold of 3 mg/L algal derived DOC. The threshold concentration of algal-derived DOC was linked to algal abundance using a ratio of DOC to chlorophyll from lakes in which DOC is predominantly from algae. The Commission has chosen the 10th percentile ratio of DOC to chlorophyll *a* of 0.6 mg/µg as a matter of policy because some small portion of algal DOC may be removed in standard treatment and because other factors in the drinking water facility also may influence the formation of DBPs.

**B. Development of Nutrient Values to Protect Recreational Uses in Rivers and Streams**

The Commission adopted a value of 150 mg chlorophyll *a* / m<sup>2</sup> for the abundance of benthic periphyton (attached algae) for protection of the recreational use in rivers and streams. The benthic algae value is based on results from several published studies. Public opinion surveys conducted by Montana Department of Environmental Quality (DEQ) showed that recreation was “desirable” in streams where benthic algae levels

were at or below 150 mg/m<sup>2</sup>. Recreation was “undesirable” where the level was at or above 200 mg/m<sup>2</sup>. The Montana study is consistent with other reports in the literature suggesting that 150 mg chlorophyll a / m<sup>2</sup> represents a “nuisance threshold.” The value will be implemented as a summertime maximum consistent with its foundation in a study of public responses to “snapshot” observations. The allowable exceedance frequency is set at once in five years, as a matter of policy, based on the historical use of a five year data period for evaluation in the context of the 303(d) list.

C. Development of Nutrient Values to Protect Aquatic Life Uses in Rivers and Streams

In section 31.17, the Commission adopted numerical values for total nitrogen and total phosphorus concentrations in Colorado’s rivers and streams. The values represent annual median concentrations with an allowable exceedance frequency of once in five years.

In this action, the Commission relied upon quantitative bioassessment of Colorado’s surface waters using tools endorsed in Commission Policy 10-1 “Aquatic Life Use Attainment: Methodology to Determine Use Attainment for Rivers and Streams” (see Policy 10-1, section VIII). Colorado’s Multimetric Index (MMI) was used (along with the total taxa metric) to measure the “health” of the macroinvertebrate community. The scientific literature demonstrates the mechanisms which link nutrients to the health of the macroinvertebrate community. Total phosphorus and total nitrogen concentration data from Colorado streams along with the bioassessments were used to derive the numeric thresholds in three steps – characterization of unimpacted conditions (anchor point location), definition of the stressor-response relationship, and threshold setting.

**Anchor Point:** Evidence was presented that characterized nutrient concentrations and the condition of the macroinvertebrate community at unimpacted warm and cold aquatic life sites in Colorado. At these sites and in the surrounding watersheds, there has been little or no human activity, and nutrient concentrations are low. The macroinvertebrate communities at these sites are in good condition and are relatively insensitive to changes in nutrient concentrations within the unimpacted range. Separately for cold and warm streams, the *anchor point condition* was chosen as the 85th percentile of the TN or TP for those sites. The median MMI (or total taxa) defines typical biological condition in unimpacted sites. The 85th percentile of the TN and TP concentration was used as the *anchor point nutrient level* since that statistic commonly has been used in Colorado to characterize the existing ambient condition.

**Stressor-Response Relationship:** Evidence submitted in this hearing showed that nutrients cause a decline in biological condition. The slope and confidence intervals of this response was estimated with a statistical tool called quantile regression. The slope of the 90th quantile provided the optimum characterization of the response, although slopes were similar for adjacent quantiles. The same procedure was applied separately for MMI and total taxa. For the stressor-response relationship, median nutrient concentrations were calculated for sites with at least five observations. Evaluation of confounding and co-varying factors such as land use, abandoned mines and sediment, showed that the effect of total phosphorus on the macroinvertebrate community was still significant when the effect of these factors was controlled. Similar results are found in the scientific literature in evaluating the significance of the effects of total nitrogen on the macroinvertebrate community.

**Threshold Setting:** In deciding on the appropriate nutrient thresholds, the Commission reaffirmed the policy decision that criteria should be set at levels that allow minimal negative effect yet still protect the use. A 5% decrease in biological condition is considered a minimal negative effect; the value is taken by analogy from the precedent for toxics, where 95% of the genera are protected from toxic effects and 5% are not

protected. In the context of setting nutrient criteria, the Commission decided as a matter of policy, that a 5% decline in the metrics that reflect the health of the aquatic community as a whole would be an allowable decline that would still provide protection of the aquatic life use.

The actual threshold values for TN and TP were derived separately for cold and warm streams in three steps based on evidence submitted in this hearing. First, the allowable decline in biological condition was calculated (it is a 5% decrease in MMI or total taxa from the anchor point condition median of the reference sites). Second, the allowable increase in nutrient concentration from the anchor point nutrient level was calculated by using the slope from the stressor-response relationship to solve for nutrient concentration that equates to the 5% allowable decline in the anchor point condition. Resulting threshold concentrations from the MMI analysis and the total taxa analysis were averaged to produce the interim values for TN and TP shown in the table.

In addition to the primary information used to calculate thresholds, the Commission considered supporting information that included comparison with published and calculated estimate of background concentrations, numeric thresholds in the scientific literature, biological metrics in the scientific literature, and thresholds developed by other states.

D. Development of Nutrient Values for Lakes and Reservoirs

The Commission adopted numerical chlorophyll *a*, total nitrogen and total phosphorus values in 31.17 for Colorado's lakes. The values represent summer average concentrations (requiring at least three observations in the months July through September of the same year). The allowable exceedence frequency is once in five years. These numerical values would be applied to lakes that are at least 25 acres in size and have a residence time of at least fourteen days. For lakes smaller than 25 acres, a narrative standard would be applied. Lakes with a residence time of less than fourteen days would be assessed against stream standards.

The values adopted by the Commission support target trophic conditions for cold and warm lakes that have been defined first in terms of algal abundance. Target trophic conditions represent the long term productivity goals that balance the potentially competing interests while minimizing the risks of water quality problems such as elevated pH. However, the Commission also recognizes that there is potential for competition between interests, like fishing, that might benefit from higher algal abundance and those, like swimming or aesthetic enjoyment, that might benefit from lower algal abundance.

The Commission selected the target trophic conditions as a matter of policy, relying in part on the existing regulatory definitions and expectations for cold and warm aquatic life. Cold lakes normally can support salmonids, and warm lakes normally can support warm water gamefish. Optimal trophic conditions for a trout fishery are mesotrophic, whereas optimal conditions for a warm water fishery are eutrophic. In both cases, the Commission specified an upper bound for productivity as a means of protecting healthy fisheries, but the Commission does not encourage or support nutrient enrichment for less productive lakes.

The Commission selected mesotrophic as the target trophic condition for cold lakes because it is supportive of trout fisheries without competing with recreational or aesthetic interests, and it is not expected to result in water quality problems (such as elevated pH). Based on evidence submitted in the hearing, a mesotrophic condition is not exceeded if the summertime average chlorophyll *a* concentration does not exceed 8 ug/L. Lakes that exceed 8 ug/L have become more productive than the target trophic condition. This level

is consistent with criteria developed by other states for lakes expected to support trout fisheries.

The Commission selected eutrophic as the target trophic condition for warm lakes because it is supportive of a warm water fishery, and is respectful of clarity preferences for recreation and aesthetics. Information submitted in the hearing, however, indicated that when chlorophyll *a* concentrations approach the upper boundary of the eutrophic range (25 ug chlorophyll *a*/L), the risk of pH exceedances increases. Accordingly, in order to reduce the risk of water quality problems due to elevated pH, the numerical value for chlorophyll *a* was reduced to 20 ug/L. Warm water lakes in which the summer average chlorophyll concentration exceeds 20 ug/L have become more productive than the target trophic condition. The values for warm lakes in Colorado are similar to those proposed by other states for “cool water” fisheries.

Numerical values for TP and TN were also adopted by the Commission. The nutrient values serve as indicators of a potential for excessive productivity rather than a means of guaranteeing a particular chlorophyll concentration. The nutrient values were selected based on evidence from Colorado lakes that relates the nutrient concentrations to algal abundance. Empirical relationships between nutrients and chlorophyll were used to characterize typical conditions for each target trophic condition, and empirical mean-variance relationships were used to define exceedance thresholds for each constituent.

The Commission believes that the numerical values for chlorophyll *a*, phosphorus, and nitrogen provide a robust basis for determining when the target trophic condition is being exceeded. The values are not intended, however, as a means of guaranteeing that all other related water quality measures, like pH and DO, will meet standards. These related measures are influenced by processes in addition to algal productivity, and they are assessed separately. Thus, they serve the additional purpose of indicating where the underlying problems are not related solely to nutrients.

#### **IV. Use of Interim Nutrient Values**

##### **A. Limitation on Use**

The initial nutrient values for phosphorus and chlorophyll *a* adopted in this regulation will not be used for the adoption of water quality standards for specific water bodies in Colorado prior to May 31, 2022, except as described below.

During the initial period of implementation, the initial nutrient values for phosphorus and chlorophyll *a* will be used for the adoption of water quality standards for waters located above significant point source discharges with preliminary effluent limitations issued prior to May 31, 2012. These values will also be used to adopt standards for protected water supply lakes and reservoirs. The regulation also reserves the right for the Commission to make a policy determination to use the interim nutrient values to adopt standards in other unanticipated circumstances where the Commission has determined that the technology based requirements in the Control Regulation will not provide adequate protection of a classified use.

The initial nutrient values for nitrogen will not be used for the adoption of water quality standards for any specific water bodies in Colorado prior to May 31, 2017. From May 31, 2017 to May 31, 2022, these nitrogen values will be used for the adoption of water quality standards for specific water bodies only in the limited circumstances described below. The Commission has adopted a later effective date for the nitrogen numerical values as a policy choice, taking into account (1) concerns about the potential cost of treatment to meet stringent nitrogen values, (2) the fact that Regulation #85 will result in substantial nitrogen control, along with phosphorus control, over the next several years, and (3) the

desirability of providing another triennial review cycle to assess any additional scientific developments regarding appropriate numerical criteria for nitrogen prior to using these numerical values to adopt enforceable standards.

The initial nutrient values are not intended to nor shall they be construed to affect effluent limitations resulting from existing TMDLs or Control Regulations developed for nutrient control. Where TMDLs are developed to address impairment of water quality standards for other parameters and it is determined that nutrients are a contributing factor, these values may be used in the development of the TMDL.

Following May 31, 2022, the numerical nutrient values adopted by the Commission may be used for the adoption of water quality standards for any surface waters in Colorado. At that time, the Commission will review the progress made in nutrients management under the regulatory provisions adopted in this proceeding and will assess where the adoption of additional water quality standards may be needed for the protection of the quality of Colorado waters.

The Commission expects that during the 2022-2025 basin reviews, in developing its proposal, the Division will carefully consider where adoption of additional numeric standards is necessary to protect uses. Entities interested in site-specific numeric standards are encouraged to develop their proposals in advance of the 2022-2025 basin reviews so that all appropriate information is available to help inform the decision making.

B. Waters Above Dischargers

Because Colorado's high quality headwaters streams are an important natural resource, the Commission has adopted provisions allowing for adoption during the next round of basin standards reviews of numerical water quality standards for phosphorus and chlorophyll *a* for waters above point sources with significant nutrient discharges. Significant dischargers are those whose discharge would cause or contribute to an exceedance of the interim values in 31.17. Adoption of standards in these areas will not impose any costs on existing dischargers, but will help assure protection of a valuable Colorado resource in the face of potential future development.

C. Direct Use Water Supply Lakes and Reservoirs

As elaborated above, the decision about whether a specific criterion is necessary to protect the DUWS will be made on a site-by-site basis. It is currently the Commission's intent to initially apply the chlorophyll *a* value without a translation to total nitrogen or total phosphorus criteria. It would be inappropriate to apply the general TN and TP translators since those are based on an assessment of the linkage between maintaining a specific trophic state and a summer average chlorophyll level. The DUWS value is based on avoiding exceedance of a threshold.

In the case where the water quality in a DUWS with a chlorophyll *a* standard exceeds its promulgated standard, then the Commission intends that, through the TMDL process, the translators can be developed to tie site-specific lake and water management characteristics to necessary in-lake and contributing watershed values for total nitrogen and/or total phosphorus.

D. Other Unanticipated Circumstances

The Commission and the Division are not currently aware of any circumstances where adoption of numerical nutrient standards for Colorado surface waters during the next round of basin reviews is necessary, except the two categories of circumstances



described above. The Commission has adopted subsection 31.17(e)(iii) to preserve its options if unanticipated circumstances should arise in which the Commission determines that such standards are necessary in view of unique site-specific conditions.

## **V. Antidegradation**

The Commission decided that no new antidegradation provisions specific to nutrients are necessary at this time. Rather, the Commission intends that its existing general practice for addressing antidegradation will apply with respect to nutrients. As noted above, the Commission intends to consider the adoption of site-specific standards for high quality waters above significant existing dischargers. In addition, in the separate control regulation being approved today, the Commission is establishing more stringent effluent limitations for new dischargers, to help minimize new impacts on Colorado water quality.

## **VI. Assessment and Section 303(d) Implementation**

The Commission does not intend that the numerical nutrient values set forth in sections 31.17(b), (c) and (d) will be used directly as a basis for identifying impaired waters to include on Colorado's Section 303(d) List. In the limited circumstances where these numeric values are used prior to 2022 as the basis for adopting site-specific numerical water quality standards, as described in sections 31.17(e) and (f), those adopted numerical standards would be used as the basis for listing decisions.

The Commission agrees with input suggesting that it is important to address how Colorado will implement the current narrative standards, as they may apply to nutrients, in making section 303(d) listing decisions. The Commission requests that the Division address this issue in development of the Section 303(d) Listing Methodology for the 2014 listing cycle. The Commission intends that listing decisions based on the narrative standards would be based on a "weight of the evidence" approach. In the absence of applicable numerical water quality standards, it is appropriate to look at all relevant considerations in making a determination about attainment of uses and compliance with the narrative standards.

In the event that a water body is determined to be impaired due to nutrient enrichment, a related standard such as DO or pH is not attained, or an investigation of an aquatic life use impairment shows that the cause is nutrient enrichment, the Commission envisions the following process would be followed:

- 1) Where the impairment is downstream of permitted discharges that are subject to controls in Regulation #85, it would receive a low priority for TMDL development until the Regulation #85 source controls are fully implemented, and the water body water quality reflects any resultant improvement.
- 2) If the water body remains impaired due to nutrients after implementation of Regulation #85, the Division will develop a TMDL that will determine appropriate site-specific numeric nutrient values to protect the applicable uses. The Division will propose those values as site-specific standards for the water body.
- 3) Where the Commission has adopted site-specific numeric standards, water-quality based effluent limits will be developed for the dischargers that have a reasonable potential to cause or contribute to an exceedance of those standards. (Compliance schedules and discharger-specific variances will be available according to the policies governing each.)
- 4) Where the impairment is upstream of permitted discharges that are subject to controls in Regulation #85, TMDL development will be designated a higher priority for the water body.

## **VII. Discharge Permits**

In order to provide direction to the Division in the case that a new facility is sited in a location where the Commission has adopted numeric nutrient standards, or where a discharger seeks to demonstrate applicability of an exception to the technology-based effluent limits at 85.5(3)(b)(i), the Commission revised section 31.9 Flow Considerations to include critical low flows for nutrients. The existing text of subsection 31.9(1) was reformatted into further subsection and a new provision was added that established critical flow conditions for nutrient standards (TN and TP). Since nutrients are not toxic, it is not appropriate to use the 30E3 chronic low flow (used for toxic parameters) in calculating permit limits. Nutrient values in section 31.17 were developed from analysis of median levels because the aquatic community integrates the effects of nutrients over time. Therefore, the Commission adopted provision 31.9(1)(c) that establishes the critical low flow for TN and TP effluent limits as the median of the July 1 – Oct 31 average daily flows, that can be expected to occur in the second driest year in a five year period. This represents the summertime base flow after spring runoff when water temperatures are expected to be higher and the aquatic community has the highest growth rate. The return frequency (second lowest in five years) was selected to reflect the allowable exceedence frequency of 1 in 5 years. Water quality based effluent limits derived using this critical low flow will apply year round.

The Commission does not intend that the interim numerical values adopted in section 31.17 would be used as the basis for implementing Colorado's narrative water quality standards, set forth in section 31.11, in discharge permits. Rather, as elaborated in the statement of basis and purpose for Regulation #85 that is being adopted in this rulemaking, the Commission intends that the requirements of that regulation, including the numerical effluent limitations for process wastewater dischargers, constitute a reasonable and appropriate first step in the implementation of Colorado's narrative standards as they relate to nutrients. Therefore, compliance with Regulation #85 will be deemed to be compliance with the narrative standards unless and until the Commission adopts subsequent revisions to Regulation #85 and/or Regulation #31.

**EXHIBIT 2**  
**WATER QUALITY CONTROL DIVISION**

**COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT**  
**WATER QUALITY CONTROL COMMISSION**

**5 CCR 1002-85**

**REGULATION #85**

**NUTRIENTS MANAGEMENT CONTROL REGULATION**

**85.1    AUTHORITY**

The Water Quality Control Commission is authorized by section 25-8-205 C.R.S., to promulgate control regulations to describe prohibitions, standards, concentrations, and effluent limitations on the extent of specifically identified pollutants that any person may discharge into any specific class of state waters.

Materials incorporated by reference are available for public inspection during normal business hours, or copies may be obtained at a reasonable cost, from the Administrator, Water Quality Control Commission, 4300 Cherry Creek Drive South, Denver, Colorado 80246. Unless expressly stated otherwise, materials incorporated by reference are those editions in existence as of the date this regulation is promulgated or revised by the Water Quality Control Commission and references do not include later amendments to or editions of the incorporated material. All material incorporated by reference may be examined at any state publications depository library.

**85.2    APPLICABILITY**

This regulation applies to point sources and nonpoint sources of nutrients as identified in this regulation.

**85.3    SEVERABILITY**

The provisions of this regulation are severable, and if any provisions or the application of the provisions to any circumstances is held invalid, the application of such provision to other circumstances, and the remainder of this regulation shall not be affected thereby.

**85.4    DEFINITIONS**

See the Colorado Water Quality Control Act and the Water Quality Control Commission codified regulations for additional definitions.

- (1) "BEST MANAGEMENT PRACTICE (BMP)" means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of "state waters." BMPs also include treatment requirements, operating procedures and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.
- (2) "DISADVANTAGED COMMUNITY" – means a community with a population less than 5,000 and an average household income of less than 80% of the State median household income.

- (3) "LOCAL GOVERNMENT" means a city, town, county, district, association, or other public body created by or under State law and having jurisdiction over disposal of sewage, industrial wastes, or other wastes, or a designated and approved management agency under section 208 of the federal Clean Water Act.
- (4) "MS4" means a municipal separate storm sewer system.
- (5) "MUNICIPAL SCREENER" means the total annualized cost of water pollution control at the DWWTW, including the cost of meeting the effluent limitations at 85.5, divided by the median household income, on a percentage basis [ie (annualized cost of treatment / median household income)\*100].
- (6) "NONPOINT SOURCE" means any activity or facility other than a point source from which pollutants are or may be discharged. For the purposes of this regulation, nonpoint source includes all runoff that is not subject to the requirements provided under Regulation #61, section 61.3(2)(e), (f), or (g), including those designated by the Division under section 61.3(2)(f)(iii), whether sheet flows or collected and conveyed through channels, conduits, pipes or other discrete conveyances.
- (7) "STORMWATER" means stormwater runoff, snow melt runoff, and surface runoff and drainage.

#### **85.5 SPECIFIC LIMITATIONS FOR DISCHARGERS OF NUTRIENTS**

The effluent limitations and stormwater management practices in this section shall be implemented in the CDPS permit authorizing the discharge.

- (1) Numeric Limitations for Domestic Wastewater Treatment Works (DWWTW)
  - (a) Domestic Wastewater Treatment Works Discharging Prior to May 31, 2012 or That Have Submitted a Complete Request For Preliminary Effluent Limits To the Division Prior to May 31, 2012
    - (i) Exclusions
 

The numeric limits in subsections (iii)(a) and (b) below will not be included in preliminary effluent limitations for Site Location and Design Approvals or in effluent limitations in CDPS permits for the following categories of dischargers:

      - (A) Any DWWTW with a design capacity of less than or equal to 1.0 million gallons per day that uses waste stabilization pond technology as its means of treating wastewater.
      - (B) Any DWWTW owned by a disadvantaged community.
      - (C) Any DWWTW with a design capacity of less than or equal to 0.5 million gallons per day.
    - (ii) Facilities Subject to Other Nutrient Control Regulations
 

The numeric limits in subsections (iii)(a) and (b) below will not be included in preliminary effluent limitations for Site Location and Design Approvals or in effluent limitations in CDPS permits prior to May 31, 2022 for existing, permitted DWWTW subject to Watershed Protection Control Regulations 71-74 (5 CCR 1002-71, 5 CCR 1002-72, 5 CCR 1002-73, and 5 CCR 1002-74).
    - (iii) All Others

For all Domestic Wastewater Treatment Works not identified in subsections (a)(i) or (ii) above and discharging prior to May 31, 2012 or for which a complete request for preliminary effluent limits has been submitted to the Division prior to May 31, 2012, the following numeric limits shall apply:

PARAMETER	PARAMETER LIMITATIONS	
	Annual Median <sup>1</sup>	95 <sup>th</sup> Percentile <sup>2</sup>
(a) Total Phosphorus	1.0 mg/l	2.5 mg/l
(b) Total Inorganic Nitrogen as N <sup>3</sup>	10 mg/l	20 mg/l

1 Running Annual Median: The median of all samples taken in the most recent 12 calendar months.

2 The 95<sup>th</sup> percentile of all samples taken in the most recent 12 calendar months.

3 Determined as the sum of nitrate as N, nitrite as N, and ammonia as N.

- (b) For New Domestic Wastewater Treatment Works which submit a complete request for preliminary effluent limits to the Division on or after May 31, 2012, the following numeric limits shall apply:

PARAMETER	PARAMETER LIMITATIONS	
	Annual Median <sup>1</sup>	95 <sup>th</sup> Percentile <sup>2</sup>
(a) Total Phosphorus	0.7 mg/l	1.75 mg/l
(b) Total Inorganic Nitrogen as N <sup>3</sup>	7 mg/l	14 mg/l

1 Running Annual Median: The median of all samples taken in the most recent 12 calendar months.

2 The 95<sup>th</sup> percentile of all samples taken in the most recent 12 calendar months.

3 Determined as the sum of nitrate as N, nitrite as N, and ammonia as N.

## (2) Numeric Limitations for Non-Domestic Wastewater Treatment Works

- (a) Non-Domestic Wastewater Treatment Works Discharging Prior to May 31, 2013. The provisions of section 85.5(1)(a)(iii) apply to non-domestic wastewater treatment works where the Division has determined, based on credible information that the facility is expected, without treatment for nutrients, to discharge total inorganic nitrogen or total phosphorus concentrations in excess of the respective effluent limitations identified in section 85.5(1)(a)(iii).
- (b) Non-Domestic Wastewater Treatment Works Which Begin Discharging On Or After May 31, 2013. The provisions of section 85.5(1)(b) apply to non-domestic wastewater treatment works where the Division has determined, based on credible information that the facility is expected, without treatment for nutrients, to discharge total inorganic nitrogen or total phosphorus concentrations in excess of the respective effluent limitations identified in section 85.5(1)(b).

## (3) Additional Provisions Applicable to Domestic and Non-Domestic Wastewater Treatment Works

- (a) Compliance Schedules

A permit shall not be issued which allows a violation of the provisions of this control regulation unless it contains a schedule of compliance requiring specific steps needed to modify or install treatment facilities, operations or other measures and deadlines for completion of those steps. Factors that the Division shall consider in developing the deadlines to be included in a compliance schedule, based on information that may be provided by the permittee or is otherwise known, shall include:

- (i) Availability of resources needed to modify or install treatment facilities, adjust operations or other measures, including any in-house resources, the availability of consultants and contractors in the area with the appropriate expertise, and the availability of financing for any identified facility construction or other capital project, including the Water Pollution Control Revolving Fund;
  - (ii) Current conditions at the site, including existing treatment processes, the physical characteristics of the property, and the layout of the facility on the property;
  - (iii) Sufficient time for operational startup, new plant optimization, and operator training;
  - (iv) Factors identified by the permittee that might significantly affect the time necessary to complete one or more of the steps necessary to attain compliance; and
  - (v) Other site specific factors affecting the cost and timing of construction activities.
- (b) Exceptions

The numerical effluent limitations set forth in sections 85.5(1)(a)(iii), 85.5(1)(b), and 85.5(2) shall not apply under the following circumstances:

- (i) Where a discharger demonstrates to the satisfaction of the Division that its discharge is unlikely to cause or contribute to ambient nutrient concentrations in its receiving waters that exceed the relevant numeric levels for total phosphorus and total nitrogen set forth in section 31.17 of Regulation #31;
- (ii) Where noncontact cooling water discharges contain nutrients (phosphorus or nitrogen) and 100 percent of the nutrients in the discharge originate from the receiving water as intake water; or
- (iii) Where discharges consist solely of ground water that is pumped for the purpose of dewatering a construction site or for building sumps so long as no phosphorus or nitrogen is added to the ground water being discharged.

(c) Variances

- (i) Variances from the numerical effluent limits set forth in sections 85.5(1)(a)(iii), 85.5(1)(b) and 85.5(2) of this control regulation may be granted by the Division where it is demonstrated by the permittee to the Division's satisfaction that the nutrient reduction benefits of meeting the section 85.5 effluent limitations do not bear a reasonable relationship to the economic, environmental, or energy impacts resulting from meeting those effluent limitations. Meeting the effluent limitations in section 85.5 shall be presumed not to bear a reasonable relationship to the associated economic, environmental, or energy impacts where:
  - (A) 50% or more of the median annual TN or TP incremental load within the 8-digit Hydrologic Unit Code (HUC) watershed results from permitted process wastewater point source discharges, if

- for public sector entities, the Municipal Screener value is 2 or greater.
  - for private sector entities, the required increase in treatment will cause more than 10 percent change in the entity's level profitability, or similar effect on liquidity, solvency, and leverage.
- (B) 20-49% of the median annual TN or TP incremental load of the 8-digit HUC watershed results from permitted process wastewater point source discharges if:
- for public sector entities, the Municipal Screener value is 1.5 or greater.
  - for private sector entities, the required increase in treatment will cause 5 to 10 percent change in the entity's level of profitability, or a similar effect on liquidity, solvency, and leverage.
- (C) <20% of the median annual TN or TP incremental load of the 8-digit HUC watershed results from permitted process wastewater point source discharges if:
- for public sector entities, the Municipal Screener value is 1 or greater.
  - for private sector entities, the required increase in treatment will cause less than 5 percent change in the entity's level profitability, or a similar effect on liquidity, solvency, and leverage.
- (ii) A request for a variance shall be accompanied by proposed alternate effluent limits that represent the highest degree of nutrient removal that is consistent with the reasonable relationship test.
- (iii) Variances shall be granted, denied, or revised as appropriate at the time of permit issuance or renewal.
- (d) Nutrient Trading
- (i) Point Source to Point Source Nutrient Trading. The numerical effluent limitations set forth in sections 85.5(1)(a)(iii), 85.5(1)(b) and 85.5(2) may be modified for individual discharge permits pursuant to a trade of nitrogen or phosphorus between point sources where the Division has determined that the trade will result in equal or better instream water quality for that parameter at all locations and at all times.
- (ii) Nonpoint Source to Point Source Nutrient Trading. The numerical effluent limitations set forth in sections 85.5(1)(a)(iii), 85.5(1)(b) and 85.5(2) may be modified for individual discharge permits pursuant to a trade of nitrogen or phosphorus credits from a nonpoint source to a point source on a stream segment or watershed basis where the Division has determined that the trade achieves a net water quality or environmental benefit and does not cause adverse localized impacts.

(4) MS4 Permit Requirements for Nutrient Source Reductions

The following requirements, at a minimum, shall be incorporated into a CDPS Permit for discharges from a Municipal Separate Storm Sewer System (MS4) required to obtain a CDPS Permit pursuant to Regulation #61.

- (a) Public education and outreach on stormwater impacts associated with nutrients. The MS4 permittee must develop, document, and implement a public education program to reduce water quality impacts associated with nitrogen and phosphorus in stormwater runoff and illicit

discharges and distribute educational materials or equivalent outreach to targeted sources (e.g., residential, industrial, agricultural, or commercial) that are contributing to, or have the potential to contribute, nutrients to the waters receiving the discharge authorized under the MS4 permit.

CDPS Permits shall authorize MS4 permittees to meet the requirements of this section through contribution to a collaborative program to evaluate, identify, target and provide outreach that addresses sources state-wide or within the specific region or watershed that includes the receiving waters impacted by the MS4 permittee's discharge(s).

- (b) Pollution Prevention/Good Housekeeping for Municipal Operations associated with nutrients. The permittee must develop and implement a municipal operations program that has the ultimate goal of preventing or reducing nitrogen and phosphorus in stormwater runoff associated with the MS4 permittee's operations.

Written procedures for an operation and maintenance program to prevent or reduce nitrogen and phosphorus in stormwater runoff associated with the MS4 permittee's operations shall be developed. The program must specifically list the municipal operations (i.e., activities and facilities) that are impacted by this operation and maintenance program.

CDPS Permits shall authorize MS4 permittees to meet the requirements of this section through contribution to a collaborative program to evaluate, identify, and target sources state-wide or within the specific region or watershed that includes the receiving waters impacted by the MS4 permittees discharge(s).

(5) Nonpoint Source Discharges

(a) Best Management Practice Implementation

- (i) Governmental entities, individuals, corporations, partnerships, associations, agencies, and other entities with responsibility for activities or facilities that cause or could reasonably be expected to cause nonpoint source nutrient pollution of waters are encouraged to adopt and implement/install BMPs to the maximum extent practicable to reduce nutrient loads from such sources.
- (ii) Agricultural operations that apply supplemental nutrients as part of crop production activities are encouraged to develop and implement nutrient management plans to the maximum extent practicable to reduce nutrient loads from such sources. Nutrient planning should be based on current soil, manure, and plant tissue test results developed in accordance with guidance or industry practice, such as that developed or recognized by Colorado State University.
- (iii) The choice of which type of voluntary nonpoint source control measures shall be made by the entities identified in paragraphs (i) and (ii) above.
- (iv) The Division shall collaborate with owners/operators of agricultural operations in pursuing incentive, grant, and cooperative programs to control nonpoint source pollution related to agricultural and silvicultural practices.

(b) Public Information and Education

- (i) The Division and entities identified in Section 85.5(5)(a)(i) are encouraged to develop and implement a public information and education program. This program will focus on the prevention of pollution from sources that could be mobilized from present and future activities as well as measures that could abate known nonpoint source pollution. Areas



for abatement include, but are not limited to, general agricultural and silvicultural practices, landscaping activities, and other nonpoint sources of nutrients.

- (ii) The program will be consistent with the voluntary, incentive-based approach and focus on the general public, and agricultural and local government sectors.
- (c) Additional Nonpoint Source Actions
  - (i) During the triennial review of this control regulation, the Division shall report to the Commission on the progress implementing the activities addressed under this section.
  - (ii) If voluntary nonpoint source BMPs are not effective in managing nutrients by May 31, 2022, the Commission may consider the adoption of prohibitions or precautionary measures to further limit nutrient concentrations.
  - (iii) Pursuant to section 25-8-205(5), C.R.S., after May 31, 2022 the Commission may consider adopting, in consultation with the commissioner of agriculture, control regulations specific to agricultural and silvicultural practices if the Commission determines that sufficient progress has not been demonstrated in agricultural nonpoint source nutrient management.

## **85.6 MONITORING REQUIREMENTS**

- (1) Monitoring requirements are established by this Control Regulation to evaluate the effectiveness of this control regulation and to determine the sources and load of nutrients at selected locations, and eventual implementation of appropriate and necessary source controls.
- (2) Point Source Monitoring - Process Wastewater Dischargers
  - (a) Applicability. The requirements of this section apply to all DWWTW, and to any non-DWWTW dischargers identified by the Division pursuant to section 85.5(2). This requirement applies to all such discharges whether or not they are subject to effluent limits. Facilities that discharge to lakes or groundwater may have modified monitoring requirements.
  - (b) Nutrient Monitoring Program: Facilities identified in subsection (2)(a), above, shall develop, implement, and document a routine water quality monitoring program. The monitoring program shall be designed to characterize the load (coincident flow and concentration) of nutrients in the discharge, the concentrations in the receiving water above the discharge, and the load of nutrients at selected locations in the rivers and streams below the discharge. The monitoring program shall include the following information:
    - (i) Effluent Monitoring:
      - (A) Locations: Sampling for nutrients is required in the effluent before it is discharged into the receiving water body at the location where monitoring is performed to satisfy other CDPS permit requirements.
      - (B) Parameters: At a minimum, sufficient data shall be collected to calculate TN, TIN, and TP load. Samples of treated effluent shall be analyzed for total nitrogen (or the components to calculate total nitrogen such as total Kjeldahl nitrogen plus nitrate-nitrite) and total phosphorus (or the components to calculate total phosphorus). Daily average effluent discharge shall be collected at the same time as the nutrient concentrations are measured.

- (C) Frequency: Samples shall be collected a minimum of six times a year (every two months) for minor discharges and monthly for major discharges.

(ii) Stream Nutrient Monitoring:

- (A) Locations: Sampling for nutrients is required in the receiving water body:

- upstream of the discharge; and
- at the closest active Colorado Division of Water Resources or United States Geological Survey (USGS) gaging station with daily flow available throughout the year downstream of the discharge's mixing zone; or
- In lieu of the closest downstream Division of Water Resources or USGS gaging station, facilities may take part in collaborative watershed-based monitoring efforts if the parameters and frequency follow sections (B) and (C) below.

- (B) Parameters: At a minimum, samples shall be analyzed for total nitrogen (total Kjeldahl nitrogen plus nitrate-nitrite, or the components to calculate total nitrogen) and total phosphorus (or the components to calculate total phosphorus). Daily streamflow record will be collected where an established gaging station is present. Where an established gaging station is not available, an alternative streamflow calculation methodology may be approved by the Division.

- (C) Frequency: Samples shall be collected a minimum of six times a year (every two months) for minor discharges and monthly for major discharges.

(iii) Lake/Reservoir Monitoring: RESERVED

- (iv) Timing: Entities shall commence data collection no later than March 1, 2013.

(3) Point Source Data Collection – Municipal Separate Storm Sewer System Dischargers

- (a) Applicability: The requirements of this section apply to all MS4s owned or operated by cities, towns, counties, and city and counties that are required to have a CDPS discharge permit pursuant to Regulation #61 for stormwater discharges from a Municipal Separate Storm Sewer System (MS4) and for which coverage was obtained prior to March 1, 2012.
- (b) Purpose: The purpose of this section is to identify information that exists, and the need for additional monitoring to be conducted in the future, to determine the approximate nitrogen and phosphorus contribution to state waters due to discharges from MS4.
- (c) Discharge Assessment Data Report: The MS4 permittee shall develop, document and submit to the Division a Discharge Assessment Data Report (Data Report) by October 31, 2014, that: documents the availability of existing data, and a "Gap Analysis" that identifies the need for additional information (e.g., monitoring data or studies), in accordance with the requirements of this section.
- (i) Objectives: The Data Report must provide information on existing data and identify additional information necessary that would allow for future analysis to meet all of the following objectives:
- (A) Allow for the determination of representative estimates that quantify MS4 discharge flows and associated concentrations, and loads of total nitrogen and

total phosphorus from the permittee's MS4. This shall include representative annual or seasonal information to define significant nutrient loads from different land uses due to rainfall events, snowmelt events, and/or dry weather flows. The Information used for making the determination must be from one or more of the following sources:

1. monitoring data collected at the discharge from the MS4, at a location within the MS4, or in state waters downstream of the discharge from the MS4;
2. monitoring data collected by one or more different entities that is shown to provide information that supports the evaluation in (A), above;
3. land use-based model(s) developed to predict nutrient concentrations in discharges from MS4s that is(are) shown to provide information that supports the evaluation in (A), above; and
4. land-use type-based runoff nutrient concentration/load values in published studies, manuals, or literature shown to provide information that supports the evaluation in (A), above.

(B) Estimates determined in accordance with (A), above:

1. are not required to be provided for individual outfalls, and may be provided for the cumulative discharges from the MS4 to a specific receiving water(s) or watershed(s);
2. are not required to address point source discharges specifically authorized by CDPS permits other than for discharges from an MS4; and
3. as necessary to provide representative information that takes into account the land uses, imperviousness, watershed hydrology, and precipitation data and other appropriate factors within the permitted area under the MS4 permit.

(ii) The Data Report shall document the following, at a minimum:

- (A) The source(s) of the existing data, including, or providing a reference to general information available for Division review. Where monitoring data are provided, it shall include a description of the methods used for sample collection, field, and laboratory analysis. All existing data used to meet the requirements of this section shall have been obtained from sources using quality assurance/quality control protocols and standards in general accordance with accepted good monitoring and analysis procedures.
- (B) For discharge data identified in the Data Report that is associated with rainfall or snowmelt events: available documentation of associated and relevant storm event data over the contributing watershed during the monitored event(s), including duration (in hours) of the rainfall event, and magnitude (in inches).
- (C) For receiving water monitoring data identified in the Data Report: available quantitative or qualitative information associated with the monitoring plan or study that generated the data that determines, or could be used to determine, the probable contributions of nitrogen and phosphorus during the monitored events

from the MS4 discharges, as compared to the overall contributions associated with the event from additional sources.

(D) A summary of the Gap Analysis, including either:

1. Information to support a determination that the existing data provided in accordance with subsection (A), above, fully or partially meets the objectives subsection in 85.6(3)(c)(i), above); and
2. Identification of the “data gaps” for which additional information is determined necessary to meet the objectives in subsection 85.6(3)(c)(i).

(iii) Collaboration with Other MS4 Permittees: To comply with the requirements of subsection 85.6(3)(c) MS4 permittees may collaborate in the development and documentation of a report with other MS4 permittees that identifies data and the required supporting information that is shown to be meet the objectives of 85.6(3)(c)(i) for each participating MS4. Data do not have to be collected from each MS4 so long as they are shown to be representative of the quality of the stormwater being discharged. Data must be representative of land uses, imperviousness, watershed hydrology, precipitation, and irrigation practices within the area which the data are intended to represent.

(d) The Division shall notify the permittee if the Division determines that the Data Report is not adequate to meet one or more of the requirements of this regulation. Such notification shall identify which provisions of the submittal, if any, require modification. Within 60 days of such notification from the Division, or a later date agreed to by the Division, the permittee shall make the required changes and re-submit the Data Report or demonstrate to the Division’s satisfaction that the requirement has been met.

(e) An MS4 permittee shall furnish to the Division, within a reasonable time, information which the Division indicates is necessary to determine compliance with the requirements of section 85.6(3).

(4) Data Quality Requirements

(a) The entities collecting the samples will document, and make publically available the sampling methods, analytical methods, method detection limits, required field condition and physical parameters to be recorded at each sampling event, and quality control and quality assurance protocols in a sampling and analysis plan.

(b) The information required under subsection (a) above, may be evaluated by the Division for compatibility with the objectives of this section. Where the Division identifies deficiencies in the protocols/methods being used to meet the objectives of subsection (a) above, the entities shall make appropriate revisions such that the Division-identified deficiencies are addressed.

(c) All sampling and analysis shall be performed by the entities according to specified methods in 40 C.F.R. Part 136; methods approved by EPA pursuant to 40 C.F.R. Part 136; or methods approved by the Division. The analytical method for all monitoring conducted in accordance with this regulation shall be capable of reporting results at or below the following method detection limits (MDL):

Total Phosphorus	0.01 mg/L
Nitrate + Nitrite	0.02 mg N /L
Total Kjeldahl Nitrogen	0.1 mg N /L
Total Nitrogen	0.1 mg/L

All results above the MDL must be reported.

- (d) The permittee shall submit a certification to the Division that the sampling and analysis plan is in place and that monitoring is taking place by March 1, 2013.

(5) Nonpoint Source and Unpermitted Point Source Monitoring

- (a) Entities responsible for nonpoint sources and unregulated point sources of nutrients are encouraged to monitor and assess surface water resource quality as identified in Section 85.6(2) to determine the extent and magnitude of nutrient impacts. In addition, the Commission recognizes state water conservation, water conservancy, and special irrigation districts as entities that monitor and assess surface water resource quality and encourages making this data publically available for use in nonpoint source management efforts.
- (b) The Division shall collaborate with these entities in developing and implementing a nutrients nonpoint source monitoring program to meet the requirements of this control regulation.
- (c) Future monitoring activities are encouraged to coordinate with point source nutrient monitoring, the Colorado Agricultural Chemicals Program, and other relevant local, state, and federal monitoring efforts.
- (d) The responsible entities are encouraged to identify potential funding sources and pursue options for monitoring in areas that do not have a current or future nutrient monitoring program.

(6) Availability and Reporting of Data

All data collected under Section 85.6 shall be maintained in an electronic form. All Data collected pursuant to this control regulation shall be submitted to the Division by April 15th of each year. The submission shall include geographic location of sampling, CDPS permit number (if appropriate), name and identification of the stream flow gage, as follows:

- (a) In electronic data deliverable as specified for receipt by the Division; or
- (b) Electronic submission to an alternative publically available data repository. If this option is selected, the Division must be notified by April 15 of each year and all relevant data must be accessible to the public.

**85.7-85.14      RESERVED**

## **WATER QUALITY CONTROL DIVISION PROPOSED**

### **85.15 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY AND PURPOSE: MARCH 12, 2012 RULEMAKING, FINAL ACTION APRIL 9, 2012; EFFECTIVE DATE OF ????**

The provisions of sections 25-8-202; 25-8-205; 25-8-304; 25-8-401; 25-8-402; and 25-8-501, C.R.S., provide the specific statutory authority for the adoption of this Control Regulation. The Commission has also adopted, in compliance with section 24-4-103(4) C.R.S., the following statement of basis and purpose.

#### **BASIS AND PURPOSE**

##### **I. Overview**

In this rulemaking hearing, the Commission has taken two major actions as part of a coordinated strategy to address current and potential future nutrient pollution of Colorado surface waters.

First, the Commission has adopted a new section 31.17 in the Basic Standards and Methodologies for Surface Water, Regulation #31, to address nutrients. Section 31.17 establishes numerical values for phosphorus, nitrogen and chlorophyll a that are deemed to be suitable for the protection of identified categories and subcategories of classified uses of Colorado surface waters. The adoption of the interim phosphorus, nitrogen and chlorophyll a values in section 31.17 is the culmination of a decade-long effort, involving hundreds of hours of staff time and numerous work group meetings with dozens of stakeholders. As discussed further below, these numerical values identify levels that the currently available scientific information indicates would be protective of the corresponding categories of beneficial uses. However, in this proceeding the Commission is not determining for which specific waters it may be necessary and appropriate to adopt standards based on these numerical values.

Second, the Commission has adopted this new Nutrients Management Control Regulation, Regulation #85. This new control regulation establishes numerical effluent limitations for many domestic wastewater treatment plants and industrial wastewater dischargers that are likely to have significant levels of nutrients in their discharges. It also describes requirements for other point source dischargers and voluntary steps for nonpoint sources to address nutrients.

Finally, it establishes monitoring requirements for point source dischargers and a program aimed at monitoring of surface waters for nutrients and related parameters. This effort is geared toward better characterizing nutrient sources, and current nutrient conditions, to help inform future regulatory decisions regarding nutrients.

The Commission has determined that the adoption of the requirements set forth in Regulation #85 are necessary to protect the public health, beneficial uses of Colorado waters, and the environment of the state, based on sound scientific and technical evidence in the record. As part of the overall nutrients management strategy described here, the Commission has decided to divert from its usual practice of adopting numerical criteria in Regulation #31 and then, in subsequent hearings to review individual basin standards, broadly applying those values as segment-specific water quality standards throughout the State. Rather, the Commission believes that Colorado will proceed faster and more expeditiously by focusing the primary control efforts over the next decade on the technology-based approach described below and set forth in this new Nutrients Management Control Regulation. However, section 31.17 includes provisions that identify limited circumstances where the interim numerical values being established may be applied in the adoption of segment specific water quality standards during the next ten years. No new or revised water quality standards are established by this current rulemaking action.

[Language will be added to include discussion regarding the outcome of the Benefit-Cost Study, the Regulatory Analysis, and their relationship to the final version of the Control Regulation adopted by the Commission, including any revisions subsequent to these drafts.]

The Commission has decided that this two-part strategy for addressing nutrients is the best current policy option to make effective progress in addressing nutrients management in Colorado at this time. The Commission believes that to rely on the usual standards-based approach alone (table value criteria, followed by segment-specific water quality standards, along with possible temporary modifications and discharger-specific variances, then assessment and listing decisions, total maximum daily load development, and then incorporation into discharge permits with compliance schedules) would result in substantially less progress in controlling nutrients in the next several years than will the technology-based approach set forth in new Regulation #85. At the same time, the Commission has retained the ability to use the new interim nutrient values established in Regulation #31 as the basis for the adoption of segment-specific water quality standards in appropriate limited circumstances. Although it will inevitably take a significant number of years for existing wastewater dischargers to accomplish the planning, financing and construction of facilities to meet the new Regulation #85 effluent limitations, that approach to implementation of nutrient controls is likely to be considerably more expeditious than that which would result from the delays and transaction costs associated with the traditional standards-based control efforts alone. Moreover, following the initial ten years of implementation of the provisions now being established the Commission will determine whether additional, more extensive standards adoption is necessary to address nutrient control needs that are not fully addressed by the technology-based requirements now being established.

## **II. Definitions**

The Commission adopted definitions for several terms not already defined in statute. The definitions of the terms “BMP”, “MS-4” and “Stormwater” were taken from the Colorado Discharge Permit System Regulations (Regulation # 61); the definition of the term “disadvantaged community” was taken from the 2011 Water Pollution Control Revolving Fund and State Domestic Wastewater Grant Intended Use Plan; and the definitions of “local government” and “nonpoint source” were taken from the Cherry Creek Reservoir Control Regulation (Regulation # 72). The definition of “municipal screener” was taken from EPA’s 1995 “Interim Economic Guidance for Water Quality Standards.”

## **III. Specific Limitations for Dischargers of Nutrients**

The Commission set mandatory requirements for selected existing and new domestic wastewater treatment works (DWWTW) and non-DWWTW (e.g., industrial facilities).

Discharges from DWWTW and certain industrial facilities are known to contain concentrations of total phosphorus and total inorganic nitrogen that are in excess of the effluent limits the Commission has established through this control regulation. For existing facilities, effluent limits for total phosphorus and total inorganic nitrogen were set based on “first level” biological nutrient removal (BNR) that would typically consist of a three stage process (single stages of anaerobic, anoxic, and aerobic zones). For new facilities, total phosphorus and total inorganic nitrogen effluent limits were based on enhanced BNR that would typically consist of a four or five stage process (multiple stages of anaerobic, anoxic, and/or aerobic zones). The evidence presented in support of the adoption of the interim numeric nutrient values in Regulation # 31 indicates that both total phosphorus and total nitrogen can contribute to water quality impacts. Therefore, basing the nutrient effluent limits on BNR technology, which reduces total phosphorus and total inorganic nitrogen concentrations, will ensure that progress is made to reduce the concentration of nutrients in Colorado’s surface waters where facilities subject to the control regulation are located. The Commission does not intend the requirements for new facilities in subsections 85.5(1)(b) and 85.5(2)(a) to apply to expansions or other improvements to existing facilities in the same location.

Effluent limits were set for total phosphorus (TP) and total inorganic nitrogen (TIN). The Commission set limits for TIN rather than total nitrogen (TN) in recognition of the variable fraction of TN that includes “recalcitrant” dissolved organic nitrogen which is difficult or impossible to biologically treat. As a matter of

policy, the Commission decided that the expectations for wastewater treatment using BNR should be based on the fraction of TN that can be reliably treated by biological means.

There were several factors that guided the Commission in setting the effluent limits and compliance statistics for total inorganic nitrogen and total phosphorus. First, there will be a large number of domestic wastewater treatment plants and a lesser number of industrial facilities that will be required to implement the effluent limits. The Commission found it necessary to find a balance between setting limits that would provide the greatest reduction in TIN and TP concentrations and the need to set limits that each of the regulated entities can finance and which the constructed facilities can reasonably be expected to achieve. The effluent limits adopted by the Commission were established based on consideration of a variety of sources of information including peer reviewed studies of treatment plant performance, industry presentations on expectations for nutrient treatment, modeling results for typically used BNR processes, and a decision support document prepared by a group of contributing consulting engineers who volunteered to provide relevant information on treatment expectations for a wide range of facilities (e.g., size and geographic location) in Colorado. Several specific factors that affect the performance of a BNR facility were identified in these materials. The Commission's consideration of factors affecting BNR performance is described below.

- **Temperature:** New facility designs can accommodate normally occurring low wastewater temperatures found in Colorado and still achieve the required effluent limits. For existing facilities not currently designed for nutrient removal, low temperature may limit the ability of existing treatment plants to meet the proposed technology-based numeric nutrient limits and additional basin volume or other design adjustments may be required.
- **Influent Wastewater Characteristics:** Facilities may need to use chemicals to optimize the influent characteristics for nutrient removal and/or add specific chemicals to help enhance or compensate for process upsets. The cost of installation of chemical feed is a relatively inexpensive aspect of a BNR project with the operational (chemical) cost being the major concern. Generally, chemical use would be fairly infrequent where chemical feed is provided as a back-up for process upsets. Some facilities may have to feed chemicals more routinely where the influent characteristics are not favorable for removal of both TP and TIN to meet the effluent limits without such addition. This may be particularly true to address situations where competing operational issues reduce the removal efficiency for one nutrient (e.g., TP) in favor of the other.
- **Influent Wastewater Loading:** Available literature that characterizes BNR facility performance does not identify the current loading as a percentage of design treatment capacity for the facilities cited. Under-loaded wastewater treatment facilities are better equipped to treat beyond the design expectations of the facility due to the ability to establish longer detention times and higher recycle ratios.
- **Combined versus Separate Nutrient Treatment Processes:** The literature did not address whether the studied facilities used combined or separate nutrient treatment processes. Separate nutrient treatment processes generally enable better removal than combined nutrient treatment processes.
- **Compliance Statistics/Periods:** Nutrients are not in and of themselves toxic and their impact on the water environment generally occurs over a longer period of time. Also, BNR treatment is subject to frequent upsets that may be caused by environmental extremes (e.g., abnormally low temperatures) or introduction of a pollutant to the wastewater influent that is toxic to the sensitive biota providing the nutrient removal.

The Commission found that there is no “formula” for characterizing the effluent concentrations that can be achieved by a well-designed and operated BNR facility. Further, the Commission found that it is reasonable and appropriate to include chemical feed as a design aspect of the “characteristic” facility upon which to base effluent limits.



The above factors played a large role in the Commission's determination of achievable limits that will result in Colorado making significant progress to reduce the discharge of nutrients to its waters from the identified classes of regulated point sources. The modeling work that the Division referenced in its basis for achievable BNR performance affected the decision as well as information the Commission was provided that indicated that the adopted limits are viewed by many in the engineering community as being appropriate for three-stage BNR.

Regarding influent loading the Commission notes that the majority (approximately 80 percent) of the mechanical wastewater treatment facilities within Colorado receive flows and/or loadings at less than 60 percent of their design hydraulic capacity. These facilities are therefore positioned to provide a higher level of treatment than at design loadings but as the flow and loading to these facilities increases, the ability to remove nutrients may diminish or disappear. The Commission respects that municipalities and industries have planned growth and other economic activity around the availability of the existing facility design capacity and that such capacity should not be presumed to be available for removal of nutrients.

Regarding averaging period for effluent limits, the Commission established annual median and 95<sup>th</sup> percentile compliance statistics. The Commission decided to require the limits to apply on a rolling basis so compliance will be determined based on the sample results for the most recent twelve months. This will provide a monthly check on the facility performance and ensure that the facilities are continuously operated. The Commission considered setting limits based on long term (annual/quarterly) averages but rejected that approach based on the fact that process upsets can result in relatively high effluent nutrient concentrations that may influence the average over several months.

The Commission finds that it is appropriate to set a companion limit to the annual median limit to ensure that BNR facilities are continuously operated. The Commission set such limits for total phosphorus and total inorganic nitrogen based on the 95<sup>th</sup> percentile of the data for the previous 12 calendar months. This will allow no more than 5% (3 samples/year if sampling occurs weekly) of samples to exceed the numeric limit which will accommodate brief periods when facility performance deteriorates as is expected to occur with BNR facilities. These limits were set based principally on the ratio of annual 95 percentile to annual median data for several Colorado BNR facilities.

The Commission appreciates that some existing facilities have implemented BNR to remove both TP and TIN in advance of any regulatory requirement and recognizes that some of these facilities may not be able to comply with the adopted limits without making improvements. The Commission decided that it is not practical to consider individually all specific facilities in setting limits that are intended to apply to a large fraction of domestic mechanical treatment plants. Therefore, achievable limits were set based on three-stage BNR with chemical addition for existing facilities and four or five stage BNR with chemical addition for new facilities.

Unlike domestic wastewater treatment works that are known to discharge concentrations of total phosphorus and total inorganic nitrogen that are in excess of the effluent limits the Commission has established through this control regulation, industrial treatment facilities may or may not discharge nutrients in such concentrations. Therefore, the Commission required an evaluation of the facility's discharge to determine whether the effluent limits will be applied. This test is to be based on "credible evidence" (e.g., effluent concentration data for the facility or published information for an industrial sector), that would indicate whether the discharge is expected to exceed the applicable effluent limits without additional treatment. Where effluent data is used to make the determination, the Commission intends the term "credible evidence" in subsections 85.5(2)(a) and (b) to be interpreted in a manner that will result in the use of a reasonably robust set of data (e.g., not a single sample).

#### **IV. Exclusions**

At this time, the Commission decided to exclude DWWTW owners with a lagoon facility with a design capacity of 1 million gallons per day (MGD), disadvantaged communities, and DWWTW owners of any facility with a capacity of 0.5 MGD or less from the requirement to meet the effluent TP and TIN limits. The Commission chose to exclude minor (< 1 MGD) lagoon systems as these facilities would have to be

entirely replaced to implement BNR in order to meet the effluent limits, at a much higher average cost. The Commission also found that it is appropriate to exclude disadvantaged communities from the requirement to meet the limits as the cost of BNR is likely beyond their means.

Finally, the Commission decided to exclude the remaining DWWTW mechanical facilities with a capacity of 0.5 MGD or less from the requirement to meet the nutrient effluent limits. Based on estimates on the record, the lagoon facilities of 1 MGD capacity or less, the disadvantaged communities, and the non-disadvantaged mechanical facilities with a design capacity of less than or equal to 0.5 MGD (247 facilities) comprise approximately 6% of the total flow at design capacity of all DWWTW and the mechanical facilities greater than 0.5 MGD and lagoon facilities of greater than 1.0 MGD (117 facilities) comprise approximately 94% of the total flow at design capacity of all DWWTW. Therefore, the effluent limits will only apply to approximately 32% of the domestic facilities but will control 94% of the design flow for domestic facilities in the state. The Division expends considerable time and resources working with small communities, which can be time consuming given that these communities are usually dependent on outside resources for planning and operations that are relatively expensive or in short supply. The Commission finds that the level of effort, on the part of hundreds of the smallest communities and the Division to achieve compliance with the effluent limits is out of scale with the benefit to be achieved by addressing the small fraction of the total nutrient loading these communities contribute to Colorado's waters.

These exclusions may be revisited in future rulemakings and effluent limits may be reconsidered at that time if determined appropriate by the Commission as a matter of public policy.

## **V. Facilities Subject to Other Nutrient Control Regulations**

The Commission provided a ten year delay in the implementation of the nutrient effluent limits for TP and TIN for existing DWWTW and industrial dischargers in the Dillon, Cherry Creek, Chatfield and Bear Creek reservoir basins. These entities are required to meet effluent limits for total phosphorus that are at least as stringent as those required under this regulation and have invested tens of millions of dollars in treatment facilities, the vast majority of which do not use BNR. The Commission found that requiring these entities to meet the new effluent limits would necessitate installation of BNR for removal of TIN at significant additional cost. The Commission provided an exemption in order to provide time for these entities to plan for any additional measures needed to meet BNR-based requirements for nitrogen and phosphorus.

## **VI. Compliance Schedules**

Given the challenge of implementing a BNR project for even the largest treatment facility owner, the Commission determined that it is appropriate to specifically recognize the factors to be taken into account by the Division in establishing a compliance schedule in a permit for this type of infrastructure project. Planning and construction of a BNR project is more complex than for other wastewater infrastructure projects such as a facility expansion. These projects are expensive and financing their construction and ongoing operation will likely require increases in user rates and the entity will need additional time to educate decision makers (Council/Board members) and to develop and present information to the ratepayers in support of the project. Also, these projects typically involve the addition of new treatment basins that had not been anticipated during the initial design of the facilities, therefore determining the right location can be challenging. Finally, these projects will require a higher level of operator expertise so significant time will be needed to train existing staff and/or to obtain new operators. The Commission recognizes that in many instances long-term compliance schedules will be needed for existing dischargers to complete these and other potential steps necessary to implement BNR treatment.

## **VII. Exceptions**

The Commission provided exceptions to the requirement to meet the nutrient effluent limits for several situations where the discharge from a treatment facility is presumed to not have a significant impact on nutrient loads in the receiving waters or downstream reservoirs.

The Commission found it appropriate to make an exception for facility owners that demonstrate that the discharge from the wastewater treatment plant (i.e., without additional nutrient removal) will not cause the receiving water to exceed the interim numeric nutrient values for total nitrogen and/or total phosphorus in Regulation #31.

The Commission applied an exception to discharges of noncontact cooling water that withdraw water from the stream receiving the discharge and to which no nutrients (nitrogen or phosphorus) are added. This is appropriate as there would be no nutrients added and the load being returned to the receiving stream would be no greater than that withdrawn.

Similarly, the Commission provided an exception for discharges of ground water being pumped to draw down the ground water level. Typically this would apply to construction dewatering which is a temporary activity and to building sumps that usually discharge relatively small amounts of water. Normally these activities are pumping very shallow (alluvial) ground water that is connected to the receiving stream and any impact will be short-lived or minor.

### **VIII. Variances**

As part of this rulemaking, the Commission adopted subsection 85.5(3)(c) that describes the process and criteria for granting a variance and provides for the implementation of alternative effluent limits for TIN and TP in certain situations. For process wastewater discharges, a variance establishes an alternative effluent limit value for a specific point source discharge that takes the place of the technology-based effluent limit specified in section 85.5. During the term of the variance, all other effluent limits not specifically modified remain applicable. Variances ensure that the highest attainable level of nutrient water quality is achieved that is consistent with the reasonable relationship test. Variances must be reviewed at the time of permit renewal and may be revised, renewed or denied as appropriate.

Variances granted by the Division pursuant to this regulation affect only the requirement to meet the effluent limitations at 85.5. There is no presumption regarding whether a discharger-specific variance to a water quality standard, (pursuant to subsection 31.7 (4)), would be granted by the Commission. Consideration of such variances would only be considered after nutrient water quality standards are adopted for the segment.

Criteria for granting a variance: The Commission adopted a “reasonable relationship” test based on the Legislative declaration in the Colorado Water Quality Control Act, C.R.S.section 25-8-102(5): *the water quality benefits of the pollution control measures [shall] have a reasonable relationship to the economic, environmental, energy and public health costs.*

The reasonable relationship test relies on an evaluation of the total wastewater treatment cost (including the cost of meeting the section 85.5 effluent limits), the community’s ability to pay, and the relative contribution of the current nutrient loading from the facility in the watershed where the discharge is located. In this way, this regulation establishes a more rigorous test for a variance where point sources contribute more of the nutrients in a watershed than unregulated sources, based on an evaluation of appropriate nutrient monitoring data.

Economic analysis: The Commission intends that the Division rely upon portions of EPA’s *Interim Economic Guidance for Water Quality Standards* (EPA 1995) methodology for determining whether a specific pollution control measure results in “substantial impacts.” For the reasonable relationship test, the Commission is not relying upon the portion of the EPA guidance that evaluates whether the impacts are “widespread”.

For public sector entities, the economic evaluation depends on the calculation of the Municipal Screener (referred to in the 1995 Guidance as the “Municipal Preliminary Screener”). The Municipal Screener acts as an index of ability to pay and means the total annualized cost of water pollution control at the

DWWTW, including the cost of meeting the effluent limitation at 85.5, divided by the median household income:

$$\text{Municipal Screener} = \frac{\text{Average Total Wastewater Treatment Cost per Household}}{\text{Median Household Income}}$$

Chapter 2 of the 1995 Guidance provides direction and explanation of how to calculate the Municipal Screener. A definition "Municipal Screener" was added at 85.4(5). A larger Multiple Screener indicates that the community has a lower ability to pay.

For private sector entities, the economic evaluation depends on an assessment of the primary measure of profitability. The secondary measures of liquidity, solvency and leverage can be used to show a similar reduction in ability to pay. Chapter 3 of the 1995 Guidance describes how these factors are evaluated.

For both public sector and private sector entities the specific values adopted for different categories of facilities based on a policy choice in light of currently available information. If practical experience in implementing this regulation warrants, the Commission can consider revising these values in subsequent triennial reviews.

Relative Nutrient Contribution: The second part of the reasonable relationship test involves determining the relative contribution of the nutrient loadings within the 8-digit hydrologic unit code (HUC8) watersheds in which the discharge is located. The relative contribution is determined based on the percentage of the total incremental nutrient load that is contributed by permitted process wastewater point sources. The "incremental load" is the mass of nutrients generated within a watershed unit (e.g. HUC8), independent of the sources upstream from the watershed unit.

Stepwise Scale for Granting a Variance: The Commission has established tiered criteria for the Division to follow when granting a variance to the effluent limits contained in section 85.5 based on the reasonable relationship test. For public sector entities, these criteria relate the incremental load attributable to point sources to the municipal screener value. Where point sources are responsible for a greater portion of the majority of the TN or TP load, a higher Municipal Screener is necessary to qualify for a variance. Likewise, where they have a relatively small effect on the incremental load, a variance may be granted for a lower Municipal Screener. Since WWTPs can be optimized for treatment of one nutrient at the expense of the other, each nutrient is assessed separately and a different conclusion may be reached for TN than TP.

The first tier is for watersheds where more than 50 percent of the TN or TP load results from aggregated sources that are required to institute nutrient controls by this regulation. In this tier, for public entities, a Municipal Screener value of 2 or more is necessary to qualify for a variance from the TIN or TP limits at 85.5(1). For private sector entities, the required increase in treatment will cause a 10 percent or greater change in the entity's level of profitability, or have a similar effect on the entity's liquidity, solvency, and leverage.

As the aggregate point source responsibility decreases, for public sector entities, a lower Municipal Screener value qualifies the discharger for a variance. For private sector entities, the required changes in profitability and other measures also decline. At 20 percent or less responsibility for the TN or TP aggregate point source incremental load, a Municipal Screener value of 1 (or a 5 percent change in profitability) qualifies a discharger for a variance.

Selection of the Alternative Effluent Limits for Process Wastewater Dischargers: A request for a variance must be accompanied by proposed alternate effluent limits that represent the highest degree of nutrient removal that is consistent with the reasonable relationship test. During the term of the variance, it is the Commission's intent that the permit require progress towards meeting the alternative limit as quickly as feasible. Steps necessary to document that progress will depend on facts of a specific situation and the

basis for the variance. In some cases, investigation of treatment technologies should continue; in others, it may require long-range planning for wastewater reuse, where allowed, or process modification.

## **IX. Trading**

Point Source to Point Source Trading: The Commission established provisions for point source to point source trading with the understanding that the owner of an upstream facility would have to agree to reduce its loading in an amount equal to the load that a downstream facility will discharge in excess of that allowed under Regulation #85. Trading will be useful in many situations, particularly where a smaller downstream facility can receive a large increase in effluent concentration by a large upstream facility taking a relatively small reduction in effluent concentration below the effluent limit.

Nonpoint Source to Point Source Trading: The purpose of section 83.5(3)(d) is to establish an alternative that allows CDPS permit holders flexibility in achieving the concentration/load-based reductions in total phosphorus (TP) and total inorganic nitrogen (TIN) that would otherwise be achieved by the new effluent limits. The Commission anticipates that by allowing such voluntary water quality measures, it will: (a) Improve water quality and optimize the use of cost effective approaches to achieving and maintaining reduced nutrient loading; (b) Provide for point source nutrient concentration/loading reductions equal to, or greater than, the effluent limitations authorized by Regulation 85; (c) Provide for voluntary nonpoint source reductions and point source discharge reductions beyond those authorized by Regulation 85; (d) Encourage early point source nutrient load reductions and accelerated progress toward meeting pending numeric nutrient water quality criteria (Regulation #31); and (e) Encourage a watershed approach that achieves multiple environmental and economic benefits, such as wetland restoration or the implementation of management practices that improve water quality and aquatic habitat and health. The Colorado Pollutant Trading Policy (Policy) is intended to provide the Division with guidance in implementing section 83.5(3)(d). While the Policy does not allow for trading where there are technology-based effluent limits, that provision was based on a prohibition of trading against federal technology-based effluent limits. Because the effluent limits in Regulation #85 are state-only limits, the Commission finds that it is appropriate to allow trading. The Commission recognizes that nonpoint source to point source trading may require significant resources for implementation. Unless the Division receives additional resources for this purpose the Commission understands that review of trades, particularly those for nonpoint source to point source, may not occur expediently.

## **X. Nutrient Source Reductions at MS4s**

The Commission finds that it is an appropriate initial step for MS4 permittees to be required to address nutrients through public education and outreach and municipal operations programs. In accordance with the regulation, these requirements shall be incorporated into the CDPS Permit for discharges from MS4s that are required to obtain a CDPS Permit pursuant to Regulation #61. The Commission does not currently have adequate information to determine the relative contribution of nutrients from MS4 to state waters that would support an assessment of the need for controls beyond those identified above.

Public education and outreach regarding nutrients must include identification and targeting of nitrogen and phosphorus sources that are contributing, or have the potential to contribute, nutrients to discharges from the permitted MS4. Identification should include types of sources for which a reduction in nutrient discharges are likely to be obtained through education, and prioritization of sources for implementation of the education program.

The MS4 permittees' municipal operations programs should include reducing nitrogen and phosphorus sources in runoff from municipal operations. To meet this requirement, an MS4 permittee must evaluate its operations and facilities to identify sources of nitrogen and phosphorus discharges from the MS4 that can be controlled through implementation of structural and nonstructural pollutant control practices.

The Commission encourages MS4 permittees to participate in collaborative efforts to evaluate, identify, target and provide outreach that addresses sources state-wide or within the specific region or watershed that includes the receiving waters impacted by the MS4 permittee's discharge(s).

Based on review of the information that is provided, as well as information from potential future monitoring requirements, the Commission intends to revisit the substantive requirements for MS4s in future triennial reviews.

## **XI. Nonpoint Source Discharges of Nutrients**

The Commission has determined that control of nonpoint sources of nutrients is an essential part of the protection of water quality and assigned uses within Colorado. Section 85.5(5) identifies entities with responsibility for activities or facilities that cause, or could be reasonably expected to cause, nonpoint source nutrient pollution and the need for implementation for nonpoint source controls. These activities include the areas of Best Management Practices, Public Information and Education, and Additional Nonpoint Source Actions as necessary nonpoint nutrient management activities. The Commission identified these nonpoint source controls as a means to make progress towards protecting existing or restoring impaired classified uses from nutrient pollutants.

### **A. Best Management Practice Implementation**

Section 85.5(5) emphasizes that Best Management Practices (BMPs) are to be voluntarily implemented by entities responsible for nonpoint source nutrient pollutants. All applicable entities are encouraged to be active participants in reducing the impacts of nonpoint source nutrient pollutants through these efforts. The Commission will evaluate the implementation of BMPs during each triennial review of this regulation. Prior to each triennial review, the Division will request information from the responsible entities and other relevant stakeholders to determine the extent of implementation. In subsequent triennial reviews, the Division will request information to determine the effectiveness of voluntary BMP implementation.

The specific agricultural BMP of nutrient management planning is also encouraged to be implemented through this control regulation. The development of nutrient management plans for irrigated crop production operations are an important initial means of reducing nonpoint source nutrient impacts to surface and ground water resources. The Commission requests that the Division coordinate with the Colorado Department of Agriculture, U.S. Department of Agriculture Natural Resources Conservation Services, and Colorado State University Extension Service to develop a process to identify, implement, and verify the application of this specific BMP. The Commission also requests that the Division collaborate with owners/operators of agricultural operations in pursuing incentive, grant, and cooperative programs to control nonpoint source pollution related to agricultural and silvicultural practices. Entities including the Colorado Department of Agriculture, Colorado Water Resources and Power Development Authority, U.S. Department of Agriculture Natural Resources Conservation Services, and others will be engaged to identify potential funding opportunities.

### **B. Public Information and Education**

The regulation encourages that a public information and education program be developed and implemented by the Division and entities responsible for nonpoint source nutrient pollutants. The Commission recognizes that public information and education is an effective means to address all nonpoint source pollution impacts. A focused information and education effort is anticipated to reduce current and potentially avoid future water quality impacts from excessive nutrients.

### **C. Additional Nonpoint Source Actions**

The Commission has determined that the progress and implementation of the activities identified in this section will be reviewed at each triennial review. These periodic evaluations will be used to assess the effectiveness of voluntary nonpoint source nutrient pollution controls. The existing extent of nutrient nonpoint source impacts, especially from irrigated crop production, has not been consistently assessed from a statewide perspective. Additionally, water quality improvements

resulting from BMP implementation typically require several years for implementation to be measurable, and therefore require that a reasonable timeframe be used for evaluation. After 10 years, the Commission may consider adoption of additional prohibitions or precautionary measures if voluntary controls on nonpoint sources are shown to be ineffective in reducing nutrient loads and protecting classified uses. The Commission considers 10 years a reasonable period for potential funding sources to be identified and appropriate nutrient nonpoint source management activities to be successfully implemented and evaluated. This evaluation will be based on the provisions identified in section 25-8-205(5), C.R.S. and the success in voluntary BMP implementation relative to existing incentive, grant, and cooperative programs.

Nationally, there has recently been increased discussion of options to provide “agricultural certainty” with respect to nonpoint source control of nutrients. The general concept is that if agricultural producers implement certain control efforts voluntarily, they would receive some protection from additional requirements at the time that requirements may become mandatory. At the first triennial review of this new control regulation, the Commission may consider developing a regulatory certainty framework for agricultural producers not required to be permitted under this control regulation in addition to the existing BMPs and Public Information and Education activities. Consideration of this additional action will be based on the progress and implementation of these activities and further assessment of the viability of the agricultural certainty concept. The Commission’s goal in considering a regulatory certainty framework is to increase producer adoption of nutrient nonpoint source controls consistent with this control regulation by providing incentives that increase the pace and extent of measurable nutrient load reductions. The framework would be designed to provide assurance to agricultural operations that investment in appropriate nutrient nonpoint source controls that result in substantive progress in reducing nutrient loads as envisioned in this control regulation will be recognized at the time that any new mandatory requirements may be established in the future. The development and implementation of this framework would require coordination with local, state, and federal agencies such as state conservation districts, Colorado Department of Agriculture, and the U.S. Department of Agriculture Natural Resources Conservation Services to ensure the effectiveness, efficiency, and leveraging of available technical and financial resources. The Commission will consider the availability of funding for Division development of the framework and the implementation of the appropriate activities by the applicable agricultural operations in determining the need for adoption of this additional nonpoint source provision.

## **XII. Monitoring**

The Commission has determined that monitoring nutrient conditions is an important component of a statewide nutrient pollution control strategy and is appropriate to include in this control regulation. The Colorado Water Quality Control Act directs the Commission to “develop and maintain a comprehensive and effective program for prevention, control, and abatement of water pollution and for water quality protection throughout the entire state” and authorizes it to “exercise all incidental powers necessary or proper for carrying out the purposes of [the Act].” C.R.S. § 25-8-202(1)(i). The Commission is “authorized to take all action necessary and appropriate to secure to this state...the benefits of said act.” C.R.S. § 25-8-202(6). The legislature specifically directed the Commission to “promulgate such regulations as may be necessary and proper for the orderly and effective administration of permits for the discharge of pollutants...The regulations may pertain to and implement...restrictions with respect to...monitoring.” C.R.S. § 25-8-501(3)(d). While the Commission decided to implement monitoring through this Control Regulation rather than through permit requirements, monitoring and data collection is required under the Control Regulation for permitted point sources subject to the permitting requirements.

The Commission has authority to adopt control regulations to describe effluent limitations on specifically identified pollutants (C.R.S. § 25-8-205(1)(a)) and to describe precautionary measures that must be taken by any party that could reasonably be expected to cause pollution of state waters in violation of control regulations (C.R.S. § 25-8-205(1)(c)). The purpose of this control regulation is for the reduction of nutrients in state waters. Therefore the Commission is adopting effluent limitations as well as monitoring requirements as a precautionary measure to implement the effluent limits, to evaluate the effectiveness of

this control regulation in protecting and restoring use classifications, to support quantification of sources, to identify nutrient trading opportunities, and to facilitate eventual implementation of appropriate and necessary source control measures. The monitoring provisions in section 85.6 are an initial phase of surface water data collection and analysis. The Commission recognizes that the provisions of these monitoring requirements might change at subsequent triennial reviews of this regulation.

#### A. Comprehensive Data Collection and Assessment

Success of a comprehensive nutrient control strategy will depend on adequate data to support decision making. The Commission recognizes that in order to be comprehensive, data collection must extend beyond the domain of this control regulation. While monitoring requirements in this control regulation described in the following sections have a narrow set of objectives, a broader focus will be needed to answer the factual and policy questions that will arise as Colorado moves toward developing and implementing a comprehensive strategy.

The focus of the requirements in this regulation is to gather data that can be assessed to inform an analysis of the effectiveness of this control regulation, to support quantification of sources, and to support development of requirements for additional source controls shown to be necessary. Other factual and policy questions for which data collection is an important part include: the appropriate refinements to nutrient table values; the appropriate nutrient site-specific standards; which waters exceed standards after development; and, the appropriate load allocations and wasteload allocations if a TMDL becomes necessary.

This Control Regulation is not the appropriate vehicle to facilitate the acquisition of data to address all of these data needs. Currently, water quality data collection efforts around the state are focused on specific questions which may or may not be useful in a larger context. Therefore, the Commission urges the Division and stakeholders to coordinate future planning and sampling efforts to maximize the usefulness of the data.

The monitoring requirements specified in Regulation 85 will impose additional service demands on the monitoring, assessment, and reporting areas within the Division. The Commission recognizes that unless additional resources are acquired, current state-wide monitoring responsibilities other than nutrients cannot be maintained unless other parties conduct additional monitoring in lieu of the Division. The impacts to the state-wide monitoring activities will be assessed by the Division and provided to the Commission on an annual basis.

The Commission directs the Division to evaluate the data gathered in response to the monitoring requirements in Regulation 85 to identify potential information gaps, both for the goals of the Control Regulation and from a state-wide perspective. At the first triennial review of Regulation #85, the Division should report on the progress of Control Regulation monitoring requirements and other nutrient monitoring focused on the other broader issues.

#### B. Process Wastewater Monitoring

Entities shall commence data collection no later than March 1, 2013. This deadline provides time to allow for coordination with nearby point source facilities, non-point sources, and other known monitoring efforts, as well as to allow for the purchase of equipment and requisite training.

Past and current nutrient data collection efforts have been conducted by the State, local and private entities that focus on a variety of other aspects of the nutrient conditions in the state. The Commission encourages the implementation of a statewide, appropriately scaled watershed-based monitoring program, but realizes that site-specific and facility-specific circumstances may prove challenging. Existing monitoring networks may fulfill the requirements of this section.

##### 1. Applicability



The monitoring requirements in this section apply to all CDPS-permitted facilities that discharge nutrients that may, without treatment, discharge total nitrogen or total phosphorus concentrations in excess of the respective effluent limitations identified in this regulation. Facilities identified as exempt from the effluent limits are required to implement the identified monitoring activities. The scope of monitoring requirements is reduced for discharges to lakes or groundwater as noted below.

2. Required Elements

Monitoring elements include the sampling location, chemical parameters, frequency of sampling, and timing considerations relevant to the types of water bodies of interest. At each location, samples shall be analyzed for both total nitrogen and total phosphorus. Total nitrogen is required in this portion of the control regulation because that is the most representative of the nitrogen in the environment. The Commission recognizes that a portion of the nitrogen discharged by wastewater treatment plants may not be immediately bioavailable, but over the timescale of days to weeks, much of this nitrogen will become available. Total nitrogen may be determined either as a single constituent (such as by the Lachat Method) or by calculation using the component fraction (such as total Kjeldahl nitrogen plus nitrate-nitrite nitrogen). Laboratory method detection limits (MDL) are specified to ensure that loads can be calculated on a scale that is useful for regional and statewide assessments. The Commission recognizes that there is a greater uncertainty in any values reported for individual data points between the minimum reporting limit (MRL) and MDL (also known as “J data” because such values are flagged with a “J”). However, the patterns of data points that includes “J data” at a location can provide important and useful information about the nutrient conditions at that location. The Commission and Division will not base decisions on “J data” results alone and will take into account the confidence and precision of any analytical results.

3. Process Wastewater Point Source Monitoring

In addition to compliance monitoring to ensure that the technology-based effluent limits in section 85.5 are not exceeded, dischargers are required to sample, analyze and report on nutrient conditions and flow in the effluent and receiving waters.

Effluent Monitoring: Effluent monitoring is required to commence March 1, 2013. The Commission has determined that final action adopting this Control Regulation in April 2012 provides sufficient time for dischargers to develop and implement an effluent monitoring plan by March 2013. Effluent shall be sampled at a point before it is discharged into the receiving water body. This location is the same point at which permit compliance samples are taken. Nutrient concentration (total nitrogen and total phosphorus) of the effluent, along with daily average effluent flow shall be determined. Flow and nutrient concentrations must be concurrent so that accurate nutrient loading can be calculated on each sampling date.

Effluent monitoring serves two purposes. First, it defines the baseline of nutrient loads for each facility. In all but a few situations, it is anticipated that March 2013 will precede significant nutrient removal activities at these facilities. As the other sections of this control regulation become effective at individual facilities, baseline loads will help determine actual nutrient removal effectiveness. Second, effluent monitoring will provide a portion of the data needed to help the Division and stakeholders quantify sources and begin to assess the relative source contributions on a regional and watershed scale. The monitoring and assessment activities determine the practical effect of implementing the control regulation.

Upstream Monitoring: Total nitrogen and total phosphorus concentrations will be monitored in the receiving water immediately above the point of discharge. This

information will provide the basis for reasonable potential determinations and an essential component of WQBEL calculations where needed.

Downstream Monitoring: Total nitrogen and total phosphorus concentrations and flow are also required to be monitored at one fully mixed location downstream of the discharge.

Two alternatives for this monitoring are identified in the control regulation. One option is for the entity to select a Colorado Division of Water Resources or USGS active flow gage station downstream of their discharge and to collect samples at that location. This option has the benefit of being able to rely upon publically available daily flow records and thereby relieve the entity of the necessity of measuring flow as well as taking the water sample. The daily flow measurements are necessary to determine the flow regime of the receiving water body between scheduled nutrient sampling dates and improve the accuracy of nutrient loading estimates on a larger time scale. The Commission recognizes that there may be other nutrient sources between the outfall and the sampling location. This requirement should not be construed to mean that the discharger is “responsible” for the nutrients, only for characterizing the flow and concentration at that point.

The second alternative is based on recognition that stakeholders wanted flexibility on the location of downstream monitoring locations to make efficient use of existing collaborative water quality monitoring programs. There are several watersheds in Colorado where coordinated monitoring programs have been in place for some time. Examples include those associated with reservoirs subject to control regulations (Dillon, Cherry Creek, Chatfield, and Bear Creek) and those operated by watershed groups (i.e., Big Dry Creek, Upper Clear Creek, Poudre, Upper Gunnison, Animas, and others).

These reservoir control regulations and watershed groups have a considerable investment in a monitoring record that could be helpful for addressing the implementation of this Control Regulation. The Commission agrees that it makes sense to build on past efforts where an existing sampling site provides information of comparable value to the new site, and would have the added benefit of a longer period of record. The Commission expects the Division to evaluate the data from an existing monitoring program on a case-by-case basis, as long as the sampling site(s) meet the flow and parameter requirements, and determine its applicability to the monitoring program.

The Commission recognizes that there may be stream segments where an established gauging station is not available or is located a significant distance below a discharge. An alternative stream flow calculation methodology may be submitted to the Division to meet the requirements of this section. The Division will review the submittal to determine its ability to provide the necessary data.

Lake and Reservoir Monitoring: The Commission has not imposed receiving water monitoring requirements on those entities that discharge to lakes and reservoirs at this time. In order to obtain useful data, monitoring water quality in lakes and reservoirs involves boats, special equipment and training. Currently, there are very few facilities in this category and most are already engaged in cooperative monitoring efforts. In future reviews of this regulation, the Commission anticipates that this provision will be re-evaluated to see if specific lake and reservoir information can be obtained effectively using this vehicle.

Monitoring Frequency: Monitoring frequency is based on the size of the facility. Major facilities (generally discharging 1 million gallons per day (MGD)) are required to sample on a monthly basis. Minor facilities (generally discharging less than 1 MGD) are required to monitor once every two months.

## C. Stormwater Data Collection

### 1. Applicability

The Commission included requirements for specific entities (e.g., cities and counties) that are required to have a CDPS discharge permit pursuant to Regulation #61 for stormwater discharges from a Municipal Separate Storm Sewer System (MS4). These MS4s are required to identify representative available information and necessary additional information (the “gap”) that in combination can be used to characterize the relative contribution of nutrients from the MS4 discharge to state waters. The Commission did not include requirements for “non-standard” MS4 permittees (e.g., special districts, school districts, universities, etc.) at this time as these entities are generally smaller and the Commission expects that the information required to be provided in the regulation will be representative of these “non-standard” MS4s. The requirements are also only applicable to entities for which permit coverage was obtained prior to March 1, 2012. It is expected that several additional MS4s will be permitted in 2013 following release of 2010 census data. Although the requirements included in this version of the regulation will not apply to the new permittees, the Commission encourages those permittees to consider voluntary participation in collaborative data collection efforts with other MS4 permittees that is consistent with the regulation. Information obtained from MS4 data collection required by this regulation, and any voluntary data collection, will be used by the Commission to determine the scale and scope of future monitoring or nutrient control requirements for MS4s. Providing voluntary data will allow for data specific to the new permittees’ MS4 discharges to be considered in future rulemakings and permitting decisions.

Requirements to provide information to characterize discharges from additional point source discharges of stormwater have not been included in this regulation (e.g., stormwater discharges associated with industrial activities and construction). The Commission has not identified these discharges as a significant relative contributor of nutrients to state waters. If, based on additional evaluation and consideration, specific activities and facilities associated with point sources other than MS4s are identified as potentially significant sources of total nitrogen or total phosphorus, regulatory requirements for these additional stormwater discharges may be reconsidered. The Commission intends to address future monitoring requirements for MS4s in the first triennial review of Regulation #85 that will take place in 2015. Therefore, the data report to identify existing information and to characterize the information gap will be due in October of 2014 to provide time for the Division to review and make necessary changes in time for final information to be used to inform the regulatory changes.

### 2. Municipal Separate Storm Sewer System Discharge Data Collection

The goal of the MS4 data collection requirements is to identify information that exists, and the need for additional monitoring to be conducted in the future, to determine the approximate nitrogen and phosphorus contribution to state waters due to discharges from the MS4. The intent is to ultimately fill the gap in data so that a one-time “snapshot” of the contribution of nutrients to state waters is provided. This initial effort to characterize discharges from MS4s is intended to focus on the contribution from MS4 discharges in Colorado on a broader basis instead of for specific outfalls. However, the regulation requires a MS4 permittee to assess data that are representative of its discharges to help ensure that the characterization identifies information adequate to inform potential next steps for assessment to determine if stormwater-related nutrient loads to Colorado’s surface waters need to be further reduced.

The Commission recognized that there are existing monitoring programs that have provided data based on samples having been collected from MS4 discharges, as well as additional monitoring programs that can provide information relative to characterizing

discharges from MS4s. In Colorado, these monitoring programs are being implemented by Phase I MS4 cities, in watersheds where phosphorus control regulations have been adopted, and through other voluntary efforts. In addition, previous studies exist that establish concentration ranges for wet weather discharges from a variety of land uses. It is not the intention of the Commission to require MS4 permittees to duplicate these efforts. Therefore, the regulation is not requiring that additional monitoring be conducted until these existing sources of information have been assessed.

Because the data assessed may be from monitoring not associated with the permitted MS4, it is the responsibility of the MS4 permittee to review and analyze the data to ensure it is providing information that is representative and will provide a sound basis for future decision-making, including requirements for monitoring and the implementation of controls that may apply to the permittee in the future. In addition, if data are provided that are not adequate in quality or do not include information to allow for analysis that meets the objectives of the regulation, future data collection may be required to meet the objectives of this regulation.

The Commission envisions requirements for the characterization of nitrogen and phosphorus in discharges from MS4s to be an iterative process. The “gap analysis” information, as well as information from assessment of the data and supporting information, will be evaluated by the Division and then the Commission to determine the need for and focus of future regulatory requirements. The Commission’s intent is for the information provided in accordance with this regulation to be used to understand the significance of MS4s as nutrient sources and to develop future regulatory requirements for monitoring, as necessary, to adequately characterize nitrogen and phosphorus contributions from MS4 discharges in Colorado. For this reason, the Commission strongly encourages MS4 permittees to be diligent in the identification of existing data that will maximize the ability for assessment to characterize nitrogen and phosphorus in the MS4s’ discharges. The extent to which the information provided identifies the need for further monitoring and data collection efforts to provide adequate information for future decision making will directly drive the scope and scale of monitoring requirements in future revisions to this regulation.

The Commission also strongly encourages, and has explicitly authorized in this regulation, that MS4 permittees collaborate in the development and documentation of the MS4 data collection information required by this regulation. The Commission intends for this flexibility to provide an opportunity to increase the efficiency and accuracy of the data while ensuring that the data are representative of the quality of the stormwater flowing from the MS4. Discussions with participating MS4 stakeholders indicate that a single, state-wide program will be the most cost-effective way to accomplish the goal of the monitoring requirement and is likely to result in the most comprehensive and useful information. Future nutrient permit conditions placed upon MS4s participating in collaborative efforts will be based upon the collaborative analysis and representative data. Permittees choosing not to participate in a collaborative effort can still provide a data analysis based on data collected from their MS4s. The Water Quality Control Division is committed to participating in the planning and development of the MS4 permittees’ data collection efforts. The extent to which the Division will have the ability to provide direct coordination with MS4 permittees on the development of Data Reports will likely be highly influenced by the extent that MS4 permittees collaborate with other MS4 permittees in development of collaborative reports.

#### **XIV. Nonpoint Source and Unpermitted Point Source Monitoring**

The Commission encourages entities responsible for nonpoint sources and unregulated point sources of nutrients to monitor and assess surface water resource quality to determine the extent and magnitude of nutrient impacts. This monitoring will provide the other portion of the total nutrient loading data needed to

help the Division and stakeholders quantify sources and begin to assess the relative source contributions on a regional and watershed scale. This data is equally important to the overall goal of this nutrient control regulation.

The Commission directed the Division to collaborate with these entities in developing and implementing a nutrients nonpoint source monitoring program to meet the requirements of this control regulation. The Division may provide technical expertise related to sampling and analysis plan development and overall logistics to develop and implement an appropriate monitoring program. The Division can also provide guidance on the coordination between point and nonpoint sources, the Colorado Agricultural Chemicals Program, and other relevant local, state, and federal monitoring efforts.

The Commission encourages responsible entities to identify potential funding sources and pursue options for monitoring in areas that do not have a current or future nutrient monitoring program. Collaborative efforts to identify and acquire the necessary funding may support regional or watershed-based monitoring and assessment activities. These efforts will provide essential information for use in future triennial reviews of the effectiveness of nonpoint source nutrient management planning and BMP implementation.

## **XV. Availability and Reporting of Data**

Data collected pursuant to section 85.6 of this regulation shall be submitted to the Division by April 15 of 2014 and each year thereafter. The 2014 submittal shall include data from March 1, 2013 through September 30, 2013. Subsequent submittals shall cover data collected from the most recent October 1 through September 30 period.

It is the Commission's intention that the data collected under this control regulation will be publically available and in a form that is easily downloaded for evaluation. The Commission recognizes two specific alternatives that currently meet those submittal requirements. The first alternative is to submit the data directly to the Division in an agreed upon electronic data deliverable format. This format is used by the Division for submittal of water quality impairment assessment consideration. The second alternative is to submit the data to an alternative publically available data repository. An example of this is the Colorado Data Sharing Network. In addition, data collected pursuant to the control regulation must be designated as publically available. If data are to be submitted via the second alternative, the Division must be notified by April 15 of each year.

The water quality data submitted under section 85.6 will be assessed by the Division at each triennial review to evaluate the effectiveness of this regulation in controlling nutrients discharged to surface waters. The Commission encourages data assessment by collaborative regional water quality monitoring efforts to be submitted. The level of assessment by the Division will be dependent upon future available resources necessary to complete the assessment. The Division will report their water quality assessment to the Commission at each triennial review informational hearing.

## **XVI. Relationship to Section 303(d) Implementation**

The Commission does not intend that the numerical nutrient values set forth in sections 31.17(b), (c) and (d) will be used directly as a basis for identifying impaired waters to include on Colorado's Section 303(d) List. In the limited circumstances where these numeric values are used prior to 2022 as the basis for adopting site-specific numerical water quality standards, as described in sections 31.17(e) and (f), those adopted numerical standards would be used as the basis for listing decisions.

The Commission agrees with input suggesting that it is important to address how Colorado will implement the current narrative standards, as they may apply to nutrients, in making section 303(d) listing decisions. The Commission requests that the Division address this issue in development of the Section 303(d) Listing Methodology for the 2014 listing cycle. The Commission intends that listing decisions based on the narrative standards would be based on a "weight of the evidence" approach. In the absence of

applicable numerical water quality standards, it is appropriate to look at all relevant considerations in making a determination about attainment of uses and compliance with the narrative standards.

In the event that a water body is determined to be impaired due to nutrient enrichment, a related standard such as DO or pH is not attained, or an investigation of an aquatic life use impairment shows that the cause is nutrient enrichment, the Commission envisions the following process would be followed:

- 1) Where the impairment is downstream of permitted discharges that are subject to controls in Regulation #85, it would receive a low priority for TMDL development until the Regulation #85 source controls are fully implemented, and the water body water quality reflects any resultant improvement.
- 2) If the water body remains impaired due to nutrients after implementation of Regulation #85, the Division will develop a TMDL that will determine what site-specific numeric nutrient values are appropriate to protect the applicable uses. The Division will propose to use those values as site-specific standards for the water body.
- 3) Where the Commission has adopted site-specific numeric standards, water-quality based effluent limits will be developed for the dischargers that have a reasonable potential to cause or contribute to an exceedance of those standards. (Compliance schedules and discharger-specific variances will be available according to the policies governing each.)
- 4) Where the impairment is upstream of permitted discharges that are subject to controls in Regulation #85, TMDL development will be designated a higher priority for the water body.

#### **XVII. Relationship to Implementation of Narrative Water Quality Standards**

The Commission has determined that the requirements of this regulation, including the numerical effluent limitations for process wastewater dischargers, constitute a reasonable and appropriate first step in the implementation of Colorado's narrative standards as they relate to nutrients. In accordance with section 25-8-205(c), C.R.S., the provisions of this control regulation establish appropriate precautionary measures to avoid or minimize the risk of violation of Colorado's narrative water quality standards as they relate to nutrients. As discussed elsewhere in this statement of basis and purpose, the Commission has determined that the nutrient controls resulting from implementation of this control regulation provide the most expeditious approach to achieving progress in nutrient pollution management in Colorado. During subsequent triennial reviews of this regulation, the Commission will determine whether additional steps are needed, in terms of point source discharge permit requirements or other measures, to attain and maintain compliance with narrative water quality standards relative to nutrients. Therefore, the Commission does not intend that the interim numerical values for nutrients being adopted in this rulemaking in Regulation #31 would be used as the basis for implementing Colorado's narrative water quality standards set forth in section 31.11 in discharge permits. Therefore, compliance with Regulation #85 will be deemed to be compliance with the narrative standards unless and until the Commission adopts subsequent revisions to Regulation #85 and/or Regulation #31.

## **EXHIBIT 3**

### **CONSERVATION GROUPS**

*[This language is proposed as a revision to the proposed section 31.17 language in the Water Quality Control Division's Exhibit 1 to this notice. The Division's proposed new language is shown with double-underlining. The Conservation Groups proposed new language is shown with SMALL CAPS and the Conservation Groups proposed deletions are shown with ~~strikeouts~~.]*

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#### **31.17 Reserved. NUTRIENTS**

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##### (e) Use of Interim Phosphorus and Chlorophyll a values for Standards Adoption

Prior to May 31, 2022, THE COMMISSION WILL CONSIDER 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) Waters:

- (A) located upstream of permitted point source dischargers with EITHER significant nutrient CONCENTRATIONS IN THEIR EFFLUENT OR DISCHARGES THAT CAUSE SIGNIFICANT NUTRIENT LOADING IN THE RECEIVING WATER. ~~discharges, with preliminary effluent limits issued prior to May 2012.~~
- (B) THE AMBIENT QUALITY OF WHICH MEETS OR EXCEEDS THE VALUES SET FORTH IN SUBSECTIONS (b) AND (d), OR
- (C) THAT THEMSELVES FLOW OUT OF THE STATE OR THAT FLOW INTO OTHER REACHES THAT FLOW OUT OF THE STATE WITH NO PERMITTED POINT SOURCE DISCHARGERS.

##### (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 lakes 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) ~~Other unanticipated~~ 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.

(iv) CIRCUMSTANCES WHERE THE COMMISSION DETERMINES THAT ADOPTION OF NUMERIC STANDARDS WILL ALLOW A MORE COST-EFFECTIVE APPROACH TO NUTRIENT CONTROL WITH THE SAME OR BETTER LEVEL OF PROTECTION THAN WOULD THE PROVISIONS OF REGULATION #85.

(f) Use of interim Nitrogen Values for Standards Adoption

After May 31, 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 except in the circumstances identified in subsection (e)(i), ~~and (iii)~~ AND (iv) above.

(g) FOR THE PURPOSES OF REGULATION 31.17 (e) AND (f), DISCHARGERS SUBJECT TO REGULATION 85 ARE CONSIDERED TO HAVE "SIGNIFICANT NUTRIENT CONCENTRATIONS IN THEIR EFFLUENT OR DISCHARGES THAT CAUSE SIGNIFICANT NUTRIENT LOADING IN THE RECEIVING WATER."

....



## **PROPOSED**

### **Conservation Groups Statement of Basis and Purpose Language**

*[This language is proposed as a revision to the Statement of Basis and Purpose language for section 31.17 in Water Quality Control Division's Exhibit 1 to this notice. Proposed new language is shown with SMALL CAPS and proposed deletions are shown with ~~strikeouts~~.]*

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#### **BASIS AND PURPOSE:**

##### **I. Overview**

In this rulemaking hearing, the Commission has taken two major actions as part of a coordinated strategy to address current and potential future nutrient pollution of Colorado surface waters.

First, the Commission has adopted a new section 31.17 in the Basic Standards and Methodologies for Surface Water, Regulation #31, to address nutrients. Section 31.17 establishes interim numerical values for phosphorus, nitrogen and chlorophyll *a* that are deemed to be suitable for the protection of identified categories and subcategories of classified uses of Colorado surface waters. The adoption of the interim phosphorus, nitrogen and chlorophyll *a* values in section 31.17 is the culmination of a decade-long effort, involving hundreds of hours of staff time and numerous work group meetings with dozens of stakeholders. As discussed further below, these interim numerical values identify levels that the currently available scientific information indicates would be protective of the corresponding categories of beneficial uses. However, in this proceeding the Commission is not determining for which specific waters it may be necessary and appropriate to adopt standards based on these interim numerical values.

Second, the Commission has adopted a new Nutrients Management Control Regulation, Regulation #85. This new control regulation establishes numerical effluent limitations for domestic wastewater treatment plants and other wastewater dischargers that use active treatment and are likely to have significant levels of nutrients in their discharges. It also describes steps to be taken by other point source dischargers and nonpoint sources to address nutrients.

Finally, it establishes monitoring requirements for point source dischargers and a program aimed at monitoring surface waters for nutrients and related parameters. This effort is geared towards better characterizing nutrient sources, and current nutrient conditions, to help inform future regulatory decisions regarding nutrients.

The Commission has determined that the adoption of the requirements set forth in Regulation #85 are necessary to protect the public health, beneficial uses of Colorado waters, and the environment of the state, based on sound scientific and technical evidence in the record. As part of the overall nutrients management strategy described here, the Commission has decided to depart from its usual practice of adopting numerical table values in Regulation #31 and then, in subsequent hearings to review individual basin standards, broadly applying those values as segment-specific water quality standards throughout the State. Rather, the Commission believes that nutrient control in Colorado will proceed faster and more expeditiously by focusing the primary control efforts over the next decade on the technology-based approach described below and set forth in a new Nutrients Management Control Regulation. However, section 31.17 includes provisions that identify ~~limited~~ circumstances where the interim numerical values being established may be applied in the adoption of segment specific water quality standards during the next ten years. No new or revised water quality standards are established by this current rulemaking action. It is the Commission's determination that this approach will achieve the maximum practical degree of water quality in the waters of the state consistent with the welfare of the state, and that this approach

maximizes the beneficial uses of water while bearing a reasonable relationship to the economic, environmental, energy, and public health costs and impacts to the public.

The Commission has decided that this two-part strategy for addressing nutrients is the best current policy option to make effective progress in addressing nutrients management in Colorado at this time. The Commission believes that to rely on the usual standards-based approach alone (table value criteria, followed by segment-specific water quality standards, along with possible temporary modifications and discharger-specific variances, and then incorporation into discharge permits with compliance schedules) would result in substantially less progress in controlling nutrients in the next several years than will the technology-based approach set forth in new Regulation #85. At the same time, the Commission has retained the ability to use the new interim nutrient values established in Regulation #31 as the basis for the adoption of segment-specific water quality standards in appropriate, but limited, circumstances. Although it will inevitably take a significant number of years for existing wastewater dischargers to accomplish the planning, financing and construction of facilities to meet the new Regulation #85 effluent limitations, that implementation of nutrient controls is likely to be considerably more expeditious than that which would result from the delays and transaction costs associated with the traditional standards-based control efforts alone. Moreover, following the initial ten years of implementation of the provisions now being established the Commission will determine whether additional, more extensive standards adoption is necessary to address nutrient control needs that are not fully addressed by the technology-based requirements now being established.

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#### **IV. Use of Interim Nutrient Values**

##### **A. Limitation on Use**

The initial nutrient values for phosphorus and chlorophyll *a* adopted in this regulation will not be used for the adoption of water quality standards for specific water bodies in Colorado prior to May 31, 2022, except as described below.

During the initial period of implementation, the initial nutrient values for phosphorus and chlorophyll *a* will be used for the adoption of water quality standards for waters located above significant point source discharges ~~with preliminary effluent limitations issued prior to May 31, 2012~~, I.E., THOSE REQUIRING PERMIT EFFLUENT LIMITS PURSUANT TO THE CONTROL REGULATION. APPLYING STANDARDS UPSTREAM OF PERMITTED DISCHARGERS SHOULD ULTIMATELY BOTH PROTECT THE QUALITY OF THESE WATERS FOR BENEFICIAL USES AND IMPROVE THE RECEIVING WATERS FOR DOWNSTREAM DISCHARGERS.

IN ADDITION, THE COMMISSION WOULD HAVE THE AUTHORITY TO ADOPT WATER QUALITY STANDARDS FOR WATERS WITH NO DOWNSTREAM DISCHARGERS ALL THE WAY TO THE STATE LINE, REGARDLESS OF WHETHER THE AMBIENT QUALITY OF THE SEGMENT. WHERE THE SEGMENT HAS QUALITY BETTER THAN THE TABLE VALUES, HAVING STANDARDS IN PLACE WILL HELP PROTECT THAT QUALITY AND BENEFICIAL USES. WHERE THE SEGMENT HAS AMBIENT QUALITY WHICH EXCEEDS TABLE VALUES, HAVING STANDARDS IN PLACE WILL PROVIDE AN INCENTIVE FOR NON-POINT SOURCE CONTRIBUTORS TO WORK ON IMPROVING THE SEGMENT'S QUALITY THROUGH THE LISTING AND TMDL PROCESS.

THE REGULATION PROVIDES THAT THE COMMISSION MAY ADOPT THE INTERIM NUTRIENT VALUES AS STANDARDS FOR WATERS WHERE AMBIENT QUALITY IS CURRENTLY BETTER THAN TABLE VALUES. THIS WILL HELP MAINTAIN GOOD QUALITY WATER, ESPECIALLY IN LOCATIONS UNDER SIGNIFICANT DEVELOPMENT PRESSURE, REGARDLESS OF WHETHER THERE ARE EXISTING PERMITTED POINT SOURCE NUTRIENT DISCHARGERS. WHERE THERE ARE EXISTING POINT SOURCE DISCHARGERS OF NUTRIENTS AND THE RECEIVING WATER'S AMBIENT QUALITY IS BETTER THAN TABLE VALUES, HAVING STANDARDS IN PLACE WILL ALSO PROTECT THOSE

DISCHARGERS' PERMIT LIMITS, BECAUSE THE QUALITY OF THE RECEIVING WATER IS USED TO CALCULATE PERMIT LIMITS.

FOR THE REASONS NOTED ABOVE, TThese values will also be used to adopt standards for protected water supply lakes and reservoirs.

The regulation also reserves the right for the Commission to make a policy determination to use the interim nutrient values to adopt standards in other ~~unanticipated~~ circumstances where the Commission has determined that the technology based requirements in the Control Regulation will not provide adequate protection of a classified use, OR WHERE AN ALTERNATIVE APPROACH TO EFFLUENT LIMITATIONS PURSUANT TO THE CONTROL REGULATION, SUCH AS A WATERSHED-WIDE TRADING PROGRAM, WILL BE A MORE COST-EFFECTIVE STRATEGY FOR CONTROLLING NUTRIENTS.

The initial nutrient values for nitrogen will not be used for the adoption of water quality standards for any specific water bodies in Colorado prior to May 31, 2017. From May 31, 2017 to May 31, 2022, these nitrogen values will be used for the adoption of water quality standards for specific water bodies ~~only in the SAME SET OF limited~~ circumstances described ~~below~~ ABOVE FOR PHOSPHORUS AND CHLOROPHYLL. The Commission has adopted a later effective date for the nitrogen numerical values as a policy choice, taking into account (1) concerns about the potential cost of treatment to meet stringent nitrogen values, (2) the fact that Regulation #85 will result in substantial nitrogen control, along with phosphorus control, over the next several years, and (3) the desirability of providing another triennial review cycle to assess any additional scientific developments regarding appropriate numerical criteria for nitrogen prior to using these numerical values to adopt enforceable standards.

The initial nutrient values are not intended to nor shall they be construed to affect effluent limitations resulting from existing TMDLs or Control Regulations developed for nutrient control. Where TMDLs are developed to address impairment of water quality standards for other parameters and it is determined that nutrients are a contributing factor, these values may be used in the development of the TMDL.

Following May 31, 2022, the numerical nutrient values adopted by the Commission may be used for the adoption of water quality standards for any surface waters in Colorado. At that time, the Commission will review the progress made in nutrients management under the regulatory provisions adopted in this proceeding AS WELL AS ANY ADVANCES IN THE SCIENCE ON PROTECTIVE NUTRIENT VALUES FOR DIFFERENT BENEFICIAL USES. BASED ON THIS ASSESSMENT, THE COMMISSION WILL PROCEED TO ~~and will assess where the adoption of additional water quality standards FOR NUTRIENTS may be needed for the~~ TO protection of the quality of Colorado waters.

The Commission expects that during the 2022 -2025 basin reviews, in developing its proposal, the Division will carefully consider where adoption of additional numeric standards is necessary to protect uses. Entities interested in site-specific numeric standards are encouraged to develop their proposals in advance of the 2022 basin reviews so that all appropriate information is available to help inform the decision making.

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**EXHIBIT 4**  
**CONSERVATION GROUPS**

*[This language is proposed as a revision to the proposed section 85.5(3(b)) language in the Water Quality Control Division's Exhibit 2 to this notice. Proposed new material is shown in small caps.]*

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**85.5    SPECIFIC LIMITATIONS FOR DISCHARGERS OF NUTRIENTS**

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(3)      Additional Provisions Applicable to Domestic and Non-Domestic Wastewater Treatment Works

....

(b)      Exceptions

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(iv)      WHERE A STREAM SEGMENT IS SUBJECT TO INTERIM NUTRIENT WATER QUALITY  
STANDARDS FROM REGULATION 31.17.

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**PROPOSED**  
**Conservation Groups Statement of Basis and Purpose Language**

*[This language is proposed as a revision to the Statement of Basis and Purpose language for sections 85.5(3)(b))in Water Quality Control Division's Exhibit 2 to this notice. Proposed new material is shown in small caps.]*

....

*[New final paragraph to Section VII, dealing with exceptions]*

FINALLY, THE COMMISSION PROVIDED AN EXCEPTION FOR THOSE CIRCUMSTANCES WHERE THE DISCHARGER IS DISCHARGING TO A WATER SEGMENT FOR WHICH REGULATION 31 TABLE VALUE NUTRIENT STANDARDS HAVE BEEN ADOPTED. IF A DISCHARGER CAN MEET WATER QUALITY STANDARDS WITHOUT COMPLIANCE WITH REGULATION 85 EFFLUENT LIMITS, THE DISCHARGER NEED NOT COMPLY WITH THE TECHNOLOGY BASED REQUIREMENTS OF REGULATION 85 IN ADDITION TO MEETING WATER QUALITY BASED EFFLUENT LIMITATIONS.

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