

DRAFT

~~September 30, 2011~~ November 2, 2011

**31.4950 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY AND PURPOSE (MARCH 2012) (EFFECTIVE \_\_\_\_\_)**

The provisions of ~~25-8-202(1) and (2), 25-8-401, and 25-8-402~~, C.R.S. provide the specific statutory authority for adoption of ~~this Control Regulation~~. 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 primarily for lakes that deliver surface water directly to a drinking water treatment ~~facility~~ plant that treats and disinfects raw water. The term "~~facility~~ plant" is interpreted broadly to include, in addition to any treatment facilities, any associated ~~any~~ 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 riterion 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(5e)(bii). The Commission may rely on a number of factors to determine whether a numerical chlorophyll standard (either the value in table 31.17(3d) 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 riterion 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 riterion 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(3d) 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 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 80ug/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, ~~which are an important category of DBPs,~~ 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 ug/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 (ug/THM per mg/DOC), a target threshold of 80 ug/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/ug 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 ug/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 Values 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 median MMI (or total taxa)~~ and 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 ~~are~~ 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 ~~that address the~~ 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 ~~it intends to 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(5e)(~~ejj~~) 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) Listing Determinations~~Implementation~~**

The Commission does not intend that the numerical nutrient values set forth in sections 31.17(2b), (3c) and (4d) 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(5e) and (6f), 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 in the case of an evaluation of the likelihood of an existing discharge to cause or contribute to ambient nutrient concentrations in its receiving waters that exceed the numeric values in section 31.17 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 ~~daily flow for the period 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 exceedance 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.