To: Tina Laidlaw/MO/R8/USEPA/US@EPA[]
From: "Suplee, Mike"
Sent: Thur 1/10/2013 11:48:00 PM
Subject: Draft rule language,
NtrntStnds_v7.7StmntRN.docx

Hi tina;

Per the recommendations for how to develop reach specific criteria and other topics, this draft represents my thoughts on how we could draft the rules for nutrients. It has not been vetted to the NWG or management, so read it with a grain of salt. It probably needs wordsmithing too.

-Mike

REASON: Overview of Why Base Numeric Nutrient Standards and Nutrient Standards Variances are Necessary. The board or department is proposing the adoption of new rules and rule modifications. These are: New Rule I; new definitions; a new circular (DEQ-12 Part A, adopted by the board) which contains numeric nutrient standards for total nitrogen and total phosphorus; DEQ-12 Part B which addresses variances from the standards (DEQ-12 Part B is adopted by the department); incorporation of circular DEQ-12 Part A into the surface water quality classifications (ARM 17.30.622 through 17.30.629); modifications to the numeric nutrient standards for the Clark Fork River (ARM 17.30.631); a low flow for base numeric nutrient standards appropriate for the design of disposal systems (ARM 17.30.635[4]); and incorporation of DEQ-12 Part A into the nondegradation rules (ARM 17.30.702 and ARM 17.30.715).

The department has documented that various forms of nitrogen and phosphorus rank as the 4th, 8th, 10th, and 12th most common types of pollution in Montana's flowing waters. In fact, excess nitrogen and phosphorus levels account for 17% of all stream miles impaired by all forms of water pollution in Montana. The intent of the proposed nutrient standards is to control the undesirable effects of eutrophication. Eutrophication is the enrichment of a waterbody (e.g., a stream or lake) by nitrogen and phosphorus, which leads to increased plant and algae growth and decay and all the consequential changes to the water quality that occur thereof. At present the state does not have numeric water quality standards for controlling eutrophication except on the Clark Fork River. As a result, in most cases permit limits (including waste load allocations determined in Total Maximum Daily Loads, i.e. TMDLs) are based upon the narrative water quality standard. The narrative standard prohibits substances in water that "create conditions which produce undesirable aquatic life" (ARM 17.30.637[1][e]).Translating the narrative standard into enforceable permit limits on a case-by-case basis is time-consuming, potentially controversial, and may result in inconsistent or differing permit limits due to various interpretations among permit or TMDL writers. Numeric nutrient criteria will resolve this.

The effects of excess nitrogen and phosphorus in streams and rivers go well beyond the undesirable aquatic life referred to in the narrative standard. Excess nitrogen and phosphorus affect other water quality parameters for which the state already has standards (dissolved oxygen, pH). The state-of-the-science is such that linkages can clearly be made between nitrogen and phosphorus concentrations and these other, already-adopted standards. Thus, the numeric nutrient criteria will also assure protection and attainment of the state's dissolved oxygen and pH standards which are, in and of themselves, critical to the protection of fish and aquatic life.

The nutrient criteria concentrations being proposed for adoption as standards are generally low, particularly in the western region of Montana. In many cases the concentrations are below the limits of current wastewater treatment technology, therefore when little or no stream dilution is available dischargers will find it difficult to meet the standards. Senate Bill 95 (2009 Legislature) and Senate Bill 367 (2011 Legislature), now codified at §75-5-313, MCA addressed the high cost and technological difficulties associated with meeting the nutrient standards in the short term. State law at §75-5-313, MCA allows dischargers to be granted variances from

numeric nutrient standards—once the criteria have been adopted as standards—in those cases where meeting the standards today would be unreasonably economically burdensome or technologically infeasible. Variances from the standards may be granted for up to twenty years. Thus, statute at §75-5-313, MCA allows for the nutrient standards to be met in a staged manner over time as alternative effluent management methods are considered, nutrient removal technologies become more cost-effective and efficient, and nonpoint sources of nutrients are addressed.

Rules or rule modifications (and Reasons thereof) that implement §75-5-313, MCA are mainly found below in New Rule I, however they are found throughout ARM Title 17, chapter 30, subchapters 6 and 7; specific details are provided in the Reasons for each rule amendment proposal.

NEW RULE I: NUTRIENT STANDARDS VARIANCES

(1) A person may apply to the department for a nutrient standards variance at any time following the board's adoption of base numeric nutrient standards.
(2) An application for an individual variance must provide adequate demonstration that there are no reasonable alternatives that eliminate the need for a variance and that attainment of the base numeric nutrient standards is precluded due to economic impacts, the limits of technology, or both. If the demonstration relies upon economic impacts, the demonstration must be consistent with the guidelines developed by the department and the nutrient work group, as provided in 75-5-313(2), MCA.
(3) The department may propose adoption of an individual variance that specifies interim effluent limits different from what would apply under an updated (i.e., more stringent than 75-5-313(5)(b), MCA) general variance where (a) water quality modeling demonstrates that greater emphasis on the reduction of one nutrient may achieve equivalent water quality and biological improvements as the reduction of both nitrogen and phosphorus, or (b) where ambient water quality and biological data demonstrate that natural factors dampen the biological impacts of elevated nutrient concentrations. Such effluent limits shall reflect the lowest effluent concentration that is feasible based on achieving the highest attainable condition for the receiving water. A person must submit the proposed effluent limits and supporting data in any demonstration they make for an application for an individual nutrient variance under paragraph (2).

(c) Any person who has effluent limits in their individual variance based on paragraph (3) must collect and submit water quality data to demonstrate in each subsequent triennial review that the status of the receiving water continues to justify those effluent limits. Data collection must be consistent with guidelines developed by the department and the nutrient work group.
(4) The department shall review each application for an individual variance to determine whether a reasonable alternative, such as trading, a permit compliance schedule, a general variance, reuse, recharge, or land application would eliminate the need for an individual variance. If the department makes a preliminary finding that a reasonable alternative to approving an individual variance is available, the department shall consult with the applicant prior to making a final decision to approve or deny the individual variance.
(5) If, after consultation with the applicant, the department determines that no reasonable alternative to an individual variance exists, the department must determine whether the information provided by the applicant in (2) adequately

demonstrates that attaining the base numeric nutrient standards is not feasible. If the department finds that attaining the base numeric nutrient standards is not feasible, the department shall approve an individual variance, which will become effective and incorporated into the applicant's permit only after adoption by the department in a formal rulemaking proceeding. Like any variance, such variances must be adopted as revisions to Montana standards, reviewed on a triennial basis, and submitted to EPA for approval.
(6) An application for a general variance must provide information demonstrating that the wastewater treatment facility meets the requirements of 75-5-313(5)(b), MCA, or updated concentrations subsequently adopted by the department. The decision to grant the general variance will be reflected in the permit that is made available for public comment.
(7) Based on the triennial review findings and conclusions, and with respect to both general and individual variances, the department will issue a rulemaking proposal for public comment. The proposal will solicit comments from the public on whether each variance should be: (1) re-adopted without changes, (2) re-adopted with changes, or (3) deleted. This will include general variance categories and the interim limits for each category, but not identification of facilities included in each category (as discussed in paragraph (6)). Based on the review conclusions and public comment, the department will revise Montana's water quality standards to reflect either (1) new interim limits to apply during the variance or (2) the continuation of the previous interim limits. (8) A variance is not needed in situations where a person complies with the waste load allocation established in an approved TMDL.

<u>REASON:</u> The Board is proposing New rule I (1) through (8) to implement Senate Bill 95 (2009 legislature) and Senate Bill 367 (2011 Legislature), which are codified at §75-5-313, MCA. New Rule I (1), (2), (3), (4), and (5) provide the department a process to determine whether a person may be granted an individual nutrient standards variance. In New Rule I (1), it is made clear that individual variances are available only after the time that the board adopts numeric nutrient criteria as standards. New Rule I (2) requires the applicant to explore alternatives to discharging that may preclude the need for a variance. New Rule I (3) addresses (in [a]) the situation where water quality modeling from a river or stream segment indicates that greater reduction of one nutrient can achieve the same desired biological endpoint(s) as controlling nitrogen and phosphorus equally, and also addresses (in [b]) the situation where a particular stream or stream segment has naturally-occurring characteristics (e.g., elevated turbidity) that mute the detrimental effects of excess nitrogen and/or phosphorus. In such cases, requiring a point source discharger to install sophisticated nutrient-removal technologies to reduce the concentration of the nutrients to levels more stringent than what is in statute (75-5-313(5)(b), MCA) may not be the most prudent nutrient control expenditure, and would cause the discharger to incur unnecessary economic expense. Since this relates to economic impacts, as described at 75-5-313(1), MCA, the department believes these situations are best addressed as individual variances. Nutrient limitation status of waterbodies can change, for example due to substantive nonpoint source cleanups upstream of the discharger, therefore status monitoring by dischargers receiving this type of individual variance is required per New Rule I (3)(c). It should also be pointed out here that potential impacts to downstream waterbodies must be given consideration for all allowances which pertain to New Rule I (3); see Circular DEQ-12 (Part A, footnote 2). New Rule I (4) allows the

department to consult with the applicant regarding what the department perceives to be the availability of reasonable alternatives which would preclude the need for the individual variance. This consultation would occur before the department makes a final decision regarding the granting of the individual variance. If it results that no reasonable alternative can be identified, New Rule I (5) instructs the department to determine if the applicant has adequately demonstrated that attaining the standards is infeasible or would not result in water quality improvement. This will be undertaken using a guidance document developed by the department and the nutrient work group. The guidance document provides (a) a process to assess economic hardship that would be incurred by the applicant if the applicant were to meet the standards at the time of the application, and (b) a description of technical analyses (e.g., modeling, monitoring) that would need to be completed to demonstrate one nutrient is more important (and thus needs to be reduced) than the other. A definition in circular DEQ-12 Part B defining the limits of technology for nutrient removal is also available for those cases where the individual variance is based on the limits of technology.

New Rule I (6) addresses the need for applicants to demonstrate that they are meeting (or soon will, via a compliance schedule) the category-specific general variance concentrations or conditions now in statute. The department is required to adopt the categories and their associated concentrations/conditions into department rule by May 31, 2016. After that, the concentrations/conditions associated with each category may be updated (i.e., made more stringent) by the department if more cost effective and efficient treatment technologies become available. Concentrations/conditions applicable to each general variance category will be housed in department circular DEQ-12 Part B. New Rule I (7) describes the review and public comment process that will be carried out every three years, and the outcomes that may occur as a result. It also compels the department to complete its first three year review (relative to variances) in a timely manner after the sunset of the statute-defined concentrations in May 2016. New Rule I (8) simply makes clear that in the development of a TMDL, insignificant loading of nutrients from a discharger is a potential outcome, and in such cases there would be no need for the discharger to request a nutrient standards variance.

17.30.602 DEFINITIONS In this subchapter the following terms have the meaning indicated below and are supplemental to the definitions given in 75-5-303, MCA:

(1) through (15) remain the same.

(16) "Limits of technology" means wastewater treatment processes for the removal of nitrogen and phosphorus compounds from wastewater that can consistently achieve a concentration of 70 micrograms of total phosphorus per liter and 4,000 micrograms of total nitrogen per liter.

(16) through (32) remain the same but are renumbered (17) through (33).

(34) "Soluble reactive phosphorus" means dissolved orthophosphate, as P, determined by direct colorimetry from a filtered sample. The pore size of the filter used must be 0.45 µm. The RRV for soluble reactive phosphorus is 3 micrograms per liter.

(33) and (34) remain the same but are renumbered (35) and (36), respectively.

~~(35)~~ (37) "Total nitrogen" means the ~~total nitrogen concentration (as N) of unfiltered water. This may be determined by direct methods, or derived as the sum of the soluble (as N) and non-soluble (as N) nitrogen fractions. The filter used to~~

~~separate the soluble and non-soluble fractions must be 0.45 µm~~ sum of all nitrate, nitrite, ammonia, and organic nitrogen, as N, in an unfiltered water sample. Total nitrogen in a sample may also be determined by persulfate digestion, or as the sum of total kjeldahl nitrogen plus nitrate plus nitrite.

~~(36)~~ (38) "Total phosphorus" means the ~~total phosphorus concentration (as P) of unfiltered water~~ sum of orthophosphates, polyphosphates, and organically bound phosphates, as P, in an unfiltered water sample. Total phosphorus may also be determined directly by persulfate digestion.

(37) through (40) remain the same but are renumbered (39) through (42).

~~(41)~~ (43) "DEQ-7" means the department circular that is adopted and incorporated by reference in ARM 17.30.619 and is entitled "Montana Numeric Water Quality Standards." This circular establishes water quality standards for toxic, carcinogenic, bioconcentrati~~on~~ng, ~~nutrient~~, radioactive, and harmful parameters, and also establishes human health-based water quality standards for the following specific nutrients with toxic effects: nitrate, nitrate + nitrite, and nitrite.

(44) "DEQ-12" means the department circular that is adopted and incorporated by reference in ARM 17.30.619 and is entitled "Montana Base Numeric Nutrient Standards and Nutrient Standards Variances" This circular contains numeric water quality standards for total nitrogen and total phosphorus in surface waters, describes procedures for receiving a variance from the standards, and will document recipients of individual variances.

REASON: The proposed amendments to ARM 17.30.602 provide new definitions (and modification of old definitions) in order to implement the nutrient standards. The amendments necessitated renumbering the existing definitions in rule. The new definition at (16), "Limits of Technology", is necessary in order to be able to implement New Rule I (2) discussed above. The concentration limits in (16) were derived after extensive discussions among department engineers, external engineers, and the nutrient work group. The new definition at (34), "Soluble reactive phosphorus", is necessary to implement related assessment information listed in DEQ-12 part A for Flathead Lake. Both total and soluble nutrient fractions have been developed for assessing this lake; the board is proposing that the total fractions be adopted as standards (consistent with other base numeric nutrient standards) and the soluble fractions be adopted as related assessment information. The modified definition of "Total nitrogen" (renumbered as 37) provides a more technically accurate description compared to the old definition. The same is true for "Total phosphorus" (renumbered as 38). In the definition for DEQ-7 (renumbered 43), "nutrient" has been removed because base numeric nutrient standards will now be housed in a new department circular, circular DEQ-12. Some nitrogen compounds (nitrate, nitrite, and nitrate + nitrate) have toxic effects at relatively high concentrations and standards for them are intended to protect human health; by definition at §75-5-103(2)(b), MCA, these compounds are not considered part of the base numeric nutrients standards. Therefore, they will remain in DEQ-7 and are now listed under the DEQ-7 definition for better clarity. The new definition at (44), "DEQ-12", defines the new department circular where numeric nutrient standards and variances from the standards will be housed. In addition to the criteria concentrations, the circular includes instructions on how to develop permits for base numeric nutrient standards, how the department will go about granting nutrient standards variances, and a table to document recipients of individual variances. As there are likely to be modifications and additions to parts of DEQ-12 going forward,

the department concluded that a circular would be the best means by which this complex information could be routinely updated. And, of equal importance, all of the information will be made available to the public in a single document.

17.30.619 INCORPORATIONS BY REFERENCE (1) The board adopts and incorporates by reference the following state and federal requirements and procedures as part of Montana's surface water quality standards:

(a) Department Circular DEQ-12, entitled "Montana Base Numeric Nutrient Standards and Nutrient Standards Variances," Part A (September 2012 edition), which establishes numeric water quality standards for total nitrogen and total phosphorus in surface waters;

~~(a)~~ (b) Department Circular DEQ-7, entitled "Montana Numeric Water Quality Standards" (August 2010 edition), which establishes water quality standards for toxic, carcinogenic, bioconcentrating, ~~nutrient,~~ and harmful parameters and also establishes human health-based water quality standards for the following specific nutrients with toxic effects: nitrate; nitrate + nitrite; and nitrite;

(b) through (f) remain the same but are renumbered (c) through (g).

(2) The department adopts and incorporates by reference the following as part of Montana's surface water quality standards:

Department Circular DEQ-12, entitled "Montana Base Numeric Nutrient Standards and Nutrient Standards Variances," Part B (September 2012 edition), which establishes variances from the numeric water quality standards for total nitrogen and total phosphorus in surface waters adopted by the board in Part A of Department Circular DEQ-12.

(2) remains the same but is renumbered (3).

REASON: The proposed amendments to ARM 17.30.619 allow for dated versions of new department circular DEQ-12 to be incorporated into other parts of the rules. It is likely that DEQ-12 will be updated through time and these future changes will affect permit limits, TMDLs, etc. As such, the document needs to be dated so that users will know which version is current. In amended (a) of the rule, reference is made to Part A of DEQ-12. Part A includes a table of the base numeric nutrient standards and, as such, is to be adopted by the board pursuant to its authority to adopt water quality standards at §75-5-301(2), MCA. The amendments to the definitions for Circular DEQ-7 correspond to those already discussed above for definitions (ARM 17.30.602). Part B of Circular DEQ-12, which focuses on nutrient standards variances and how these are to be implemented and updated, is not adopted by the board but is instead adopted by the department. Part B of DEQ-12 may also change through time (for example, if individual variances are granted they will be documented here), and so it needs to be a dated document as provided for here in (2).

17.30.622 A-1 CLASSIFICATION STANDARDS (1) through (2) remain the same.

(3) No person may violate the following specific water quality standards for waters classified A-1:

(a) through (g) remain the same.

(h) Concentrations of carcinogenic, bioconcentrating, toxic, radioactive, nutrient, or harmful parameters may not exceed the applicable standards set forth in department Circular DEQ-7 and, unless a nutrient standards variance from the base

numeric nutrient standards has been granted pursuant to DEQ-12 Part B, Circular DEQ-12 Part A.

(i) Dischargers issued permits under ARM Title 17, chapter 30, subchapter 13, shall conform with ARM Title 17, chapter 30, subchapter 7, the nondegradation rules, and may not cause receiving water concentrations to exceed the applicable standards contained in department Circular DEQ-7 and, when applicable, the base numeric nutrient standards or nutrient standards variances in DEQ-12 when stream flows equal or exceed the design flows specified in ARM 17.30.635(4).

(j) through (k) remain the same.

17.30.623 B-1 CLASSIFICATION STANDARDS (1) remains the same.

(2) No person may violate the following specific water quality standards for waters classified B-1:

(a) through (g) remain the same.

(h) Concentrations of carcinogenic, bioconcentrating, toxic, radioactive, nutrient, or harmful parameters may not exceed the applicable standards set forth in department Circular DEQ-7 and, unless a nutrient standards variance from the base numeric nutrient standards has been granted pursuant to DEQ-12 Part B, Circular DEQ-12 Part A.

(i) Dischargers issued permits under ARM Title 17, chapter 30, subchapter 13, shall conform with ARM Title 17, chapter 30, subchapter 7, the nondegradation rules, and may not cause receiving water concentrations to exceed the applicable standards specified in department Circular DEQ-7 and, when applicable, the base numeric nutrient standards or nutrient standards variances in DEQ-12 when stream flows equal or exceed the design flows specified in ARM 17.30.635(4).

(j) through (k) remain the same.

17.30.624 B-2 CLASSIFICATION STANDARDS (1) remains the same.

(2) No person may violate the following specific water quality standards for waters classified B-2:

(a) through (g) remain the same.

(h) Concentrations of carcinogenic, bioconcentrating, toxic, radioactive, nutrient, or harmful parameters may not exceed the applicable standards set forth in department Circular DEQ-7 and, unless a nutrient standards variance from the base numeric nutrient standards has been granted pursuant to DEQ-12 Part B, Circular DEQ-12 Part A.

(i) Dischargers issued permits under ARM Title 17, chapter 30, subchapter 13, shall conform with ARM Title 17, chapter 30, subchapter 7, the nondegradation rules, and may not cause receiving water concentrations to exceed the applicable standards specified in department Circular DEQ-7 and, when applicable, the base numeric nutrient standards or nutrient standards variances in DEQ-12 when stream flows equal or exceed the design flows specified in ARM 17.30.635(4).

(j) through (k) remain the same.

17.30.625 B-3 CLASSIFICATION STANDARDS (1) remains the same.

(2) No person may violate the following specific water quality standards for waters classified B-3:

(a) through (g) remain the same.

(h) Concentrations of carcinogenic, bioconcentrating, toxic, radioactive, nutrient, or harmful parameters may not exceed the applicable standards set forth in department Circular DEQ-7 and, unless a nutrient standards variance from the base numeric nutrient standards has been granted pursuant to DEQ-12 Part B, Circular DEQ-12 Part A.

(i) Dischargers issued permits under ARM Title 17, chapter 30, subchapter 13, shall conform with ARM Title 17, chapter 30, subchapter 7, the nondegradation rules, and may not cause receiving water concentrations to exceed the applicable standards specified in department Circular DEQ-7 and, when applicable, the base numeric nutrient standards or nutrient standards variances in DEQ-12 when stream flows equal or exceed the design flows specified in ARM 17.30.635(4).

(j) through (k) remain the same.

17.30.626 C-1 CLASSIFICATION STANDARDS (1) remains the same.

(2) No person may violate the following specific water quality standards for waters classified C-1:

(a) through (g) remain the same.

(h) Concentrations of carcinogenic, bioconcentrating, toxic, radioactive, nutrient, or harmful parameters may not exceed the applicable standards set forth in department Circular DEQ-7 and, unless a nutrient standards variance from the base numeric nutrient standards has been granted pursuant to DEQ-12 Part B, Circular DEQ-12 Part A.

(i) Dischargers issued permits under ARM Title 17, chapter 30, subchapter 13, shall conform with ARM Title 17, chapter 30, subchapter 7, the nondegradation rules, and may not cause receiving water concentrations to exceed the applicable standards specified in department Circular DEQ-7 and, when applicable, the base numeric nutrient standards or nutrient standards variances in DEQ-12 when stream flows equal or exceed the design flows specified in ARM 17.30.635(4).

(j) through (k) remain the same.

17.30.627 C-2 CLASSIFICATION STANDARDS (1) remains the same.

(2) No person may violate the following specific water quality standards for waters classified C-2:

(a) through (g) remains the same.

(h) Concentrations of carcinogenic, bioconcentrating, toxic, radioactive, nutrient, or harmful parameters may not exceed the applicable standards set forth in department Circular ~~WQB~~-DEQ-7 and, unless a nutrient standards variance from the base numeric nutrient standards has been granted pursuant to DEQ-12 Part B, Circular DEQ-12 Part A.

(i) Dischargers issued permits under ARM Title 17, chapter 30, subchapter 13, shall conform with ARM Title 17, chapter 30, subchapter 7, the nondegradation rules, and may not cause receiving water concentrations to exceed the applicable standards specified in department Circular DEQ-7 and, when applicable, the base numeric nutrient standards or nutrient standards variances in DEQ-12 when stream flows equal or exceed the design flows specified in ARM 17.30.635(4).

(j) through (k) remain the same.

REASON: The proposed amendments to ARM 17.30.622 through 627 incorporate circular DEQ-12 into the surface water classes. In each of the six use classes for

surface water defined in ARM 17.30.622 through 627 (use classes A-1, B-1, B-2, B-3, C-1, and C-2), the lettered subsections under (2) define the water quality standards that no person may violate. These include subsection (h) which refers to water quality standards in Circular DEQ-7. The amendment to (h) is the incorporation of the nutrient concentrations found in Circular DEQ-12 Part A and, further, clarification that a person may violate the water quality standards in DEQ-12 Part A if they have been granted a nutrient standards variance pursuant to Part B of the circular. Amendments to subsection (i) of the rules address nondegradation and permits. Board adoption of the base numeric nutrient standards will alter the way the department applies nondegradation rules for nutrients. At present, nutrients are addressed by a narrative standard (discussed in the Overview) and, for narrative standards, the nonsignificance threshold (i.e., a level below which water quality degradation is assumed not to have occurred) is defined as a measurable change in aquatic life or ecological integrity. With the adoption of DEQ-12 Part A, nutrients will be numeric standards and, therefore, the approach by which nondegradation of surface waters is determined will change. For numeric standards, nonsignificance thresholds are calculated as a percent of the standard's concentration; thus, changes to (i) direct the department to the appropriate document (DEQ-12) to locate the numeric nutrient standards used to calculate nonsignificance thresholds.

17.30.628 I CLASSIFICATION STANDARDS (1) remains the same.

(2) No person may violate the following specific water quality standards for waters classified I:

(a) through (i) remain the same.

(j) Beneficial uses are considered supported when the concentrations of toxic, carcinogenic, or harmful parameters in these waters do not exceed the applicable standards specified in department Circular DEQ-7 and DEQ-12 when stream flows equal or exceed the flows specified in ARM 17.30.635(4) or, alternatively, for aquatic life when site-specific criteria are adopted using the procedures given in 75-5-310, MCA. The limits shall be used as water quality standards for the affected waters and as the basis for permit limits instead of the applicable standards in department Circular DEQ-7.

(k) Limits for toxic, carcinogenic, or harmful parameters in new discharge permits issued pursuant to the MPDES rules (ARM Title 17, chapter 30, subchapter 13) are the larger of either the applicable standards specified in department Circular DEQ-7 and, when applicable, the base numeric nutrient standards or nutrient standards variances in DEQ-12, site-specific standards or one-half of the mean in-stream concentrations immediately upstream of the discharge point.

REASON: The proposed amendment to ARM 17.30.628 incorporates new circular DEQ-12 into the I surface water class. I class waterbodies are those which had severe human-caused pollution problems at the time the surface water class system was adopted in the 1970s, and it is the intent of the state that these waterbodies will eventually support beneficial uses typical for ecologically-similar unimpacted waterbodies. Amendments to (j) incorporate DEQ-12 alongside DEQ-7.

17.30.629 C-3 CLASSIFICATION STANDARDS (1) remains the same.

(2) No person may violate the following specific water quality standards for waters classified C-3:

(a) through (g) remain the same.

(h) Concentrations of carcinogenic, bioconcentrating, toxic, radioactive, nutrient, or harmful parameters may not exceed the applicable standards set forth in department Circular DEQ-7 and, unless a nutrient standards variance from the base numeric nutrient standards has been granted pursuant to DEQ-12 Part B, Circular DEQ-12 Part A.

(i) Dischargers issued permits under ARM Title 17, chapter 30, subchapter 13, shall conform with ARM Title 17, chapter 30, subchapter 7, the nondegradation rules, and may not cause receiving water concentrations to exceed the applicable standards specified in department Circular DEQ-7 and, when applicable, the base numeric nutrient standards or nutrient standards variances in DEQ-12 when stream flows equal or exceed the design flows specified in ARM 17.30.635(4).

(j) through (k) remain the same.

REASON: The proposed amendments to ARM 17.30.629 incorporate circular DEQ-12 into the C-3 surface water class. In ARM 17.30.629, the lettered subsections under (2) define the water quality standards that no person may violate; these include subsection (h) which refers to water quality standards in Circular DEQ-7. The amendment to (h) is the incorporation of the nutrient concentrations found in Circular DEQ-12 Part A and, further, clarification that a person may violate the water quality standards in DEQ-12 Part A if they have been granted a nutrient standards variance pursuant to Part B of the circular. Amendments to subsection (i) of the rules address nondegradation and permits. Board adoption of the base numeric nutrient standards will alter the way the department applies nondegradation rules for nutrients. At present, nutrients are addressed by a narrative standard (discussed in the Overview) and, for narrative standards, the nonsignificance threshold (i.e., a level below which water quality degradation is assumed not to have occurred) is defined as a measurable change in aquatic life or ecological integrity. With the adoption of DEQ-12 Part A, nutrients will be numeric standards and, as such, the approach by which degradation of surface waters is determined will change. For numeric standards, nonsignificance thresholds are calculated as a percent of the standard's concentration; thus, changes to (i) direct the department to the appropriate document (DEQ-12) to locate the numeric nutrient standards used to calculate nonsignificance thresholds.

~~17.30.631 NUMERIC ALGAL BIOMASS AND NUTRIENT STANDARDS~~

~~(1) No person may violate the numeric water quality standards identified below.~~

~~(2) The numeric nutrient and standing crop of benthic algae water quality standards for the mainstem Clark Fork River from below the Warm Springs Creek confluence (N46º11'17", W112º46'03") to the confluence with the Flathead River (N47º21'45", W114º46'43") are as follows:~~

~~(a) In the mainstem Clark Fork River from below the Warm Springs Creek confluence (N46º11'17", W112º46'03") to the confluence with the Blackfoot River (N46º52'19", W113º53'35") the numeric water quality standards for Total Nitrogen, Total Phosphorus, and benthic algal chlorophyll a, applicable from June 21 to September 21, are as follows:~~

~~(i) Parameter~~	~~Concentration~~
~~Total Phosphorus as P~~	~~20 µg/L~~

~~Total Nitrogen as N~~	~~300 µg/L~~
~~(ii) Parameter~~	~~Density~~
~~(Summer mean) - Benthic algal chlorophyll a~~	~~100 mg/square meter~~
~~(Maximum) - Benthic algal chlorophyll a~~	~~150 mg/square meter~~

~~(b) In the Clark Fork River from the confluence with the Blackfoot River (N46º52'19", W113º53'35") to the confluence with the Flathead River (N47º21'45", W114º46'43") the numeric water quality standards for Total Nitrogen, Total Phosphorus, and benthic algal chlorophyll a, applicable from June 21 to September 21, are as follows:~~

~~(i) Parameter~~	~~Concentration~~
~~Total Phosphorus as P~~	~~39 µg/L~~
~~Total Nitrogen as N~~	~~300 µg/L~~
~~(ii) Parameter~~	~~Density~~
~~(Summer mean) - Benthic algal chlorophyll a~~	~~100 mg/square meter~~
~~(Maximum) - Benthic algal chlorophyll a~~	~~150 mg/square meter~~

REASON: The Board's rationale for the proposed repeal of ARM 17.30.631 is that the contents of the entire rule will be housed in department circular DEQ-12 Part A. In addition to moving the contents of ARM 17.30.631 to the new circular, there are proposed changes to the *content* of ARM 17.30.631 that will appear in DEQ-12 Part A. Specifically, the time period during which the Clark Fork River algal biomass and nutrient standards apply will be changed to July 1st to September 30th of each year. This change is in keeping with the time period being proposed for other streams and rivers in the region of the Clark Fork River. The proposed July 1 to September 30th time frame was derived from a scientific analysis of streams and rivers across the state and is documented in a peer-reviewed scientific journal article. The total phosphorus standard for the reach of the Clark Fork River commencing at the confluence of the Blackfoot River has been lowered from 39 µg/L to 24 µg/L. Scientific analysis of twelve years of monitoring data on the Clark Fork River indicate that the lower TP standard is necessary in order to achieve the benthic (bottom-attached) algal biomass levels; this is documented in a peer-reviewed scientific journal article. In summary, the proposed rule amendments (period of application of the standards, updated total phosphorus standard) will bring the standards for the Clark Fork River up-to-date in terms of the state of the science.

17.30.635 GENERAL TREATMENT STANDARDS (1) through (3) remain the same.

(4) For design of disposal systems, stream flow dilution requirements must be based on the minimum consecutive seven-day average flow which may be expected to occur on the average of once in 10 years. When dilution flows are less than the above design flow at a point discharge, the discharge is to be governed by the permit conditions developed for the discharge through the waste discharge permit program. If the flow records on an affected surface water are insufficient to calculate a 10-year seven-day low flow, the department shall determine an

acceptable stream flow for disposal system design. ~~The department shall determine the acceptable stream flow for disposal system design for controlling nitrogen and phosphorus concentrations.~~ For total nitrogen and total phosphorus, the stream flow dilution requirements must be based on the seasonal 14Q5, which is the lowest average 14 consecutive day low flow, occurring from July through October, with an average recurrence frequency of once in 5 years.

REASON: The proposed amendments to ARM 17.30.635 will provide a low flow for the design of disposal systems specific to eutrophication-based nutrient standards. The text of the rule that received strike-out was essentially placeholder language instructing the department to derive an appropriate low flow for nutrients. That work has now been completed. Work by the department and others shows that nuisance benthic algae can develop in about 15-20 days once nutrient concentrations exceed the proposed standards. In many streams these algae levels can ultimately lead to dissolved oxygen impacts. The department recommends the use of the seasonal 14Q5 flow for the design of disposal systems as this flow should not allow excess algae levels to develop more often than about once in every five summers, on average. This frequency of exceedence is within the acceptable recommendations of the U.S. Environmental Protection Agency for the protection of aquatic life. Unlike the 7Q10 flow, which will continue to be used for parameters in DEQ-7 and which was derived from year-round flow data, the seasonal 14Q5 flow is derived from July through October data and is therefore in alignment with the nutrient standards' periods of application. The seasonal 14Q5 is routinely calculated and reported by the U.S. Geological Survey and will be readily available for permit writers to use.

17.30.702 DEFINITIONS The following definitions, in addition to those in 75-5-103, MCA, apply throughout this subchapter (Note: 75-5-103, MCA, includes definitions for "base numeric nutrient standards," "degradation," "existing uses," "high quality waters," "mixing zone," and "parameter"):

(1) through (16) remain the same.

~~(17) "Nutrients" means total inorganic phosphorus and total inorganic nitrogen.~~

(18) through (21) remain unchanged but are renumbered (17) through (20).

~~(22)~~ (21) "Reporting values (RRV)" means the detection level that must be achieved in reporting surface water or ground water monitoring or compliance data to the department unless otherwise specified in a permit, approval, or authorization issued by the department. The RRV is the department's best determination of a level of analysis that can be achieved by the majority of commercial, university, or governmental laboratories using EPA approved methods or methods approved by the department. The RRV is listed in Circular DEQ-7, Part A of Circular DEQ-12, and the definition of total inorganic phosphorus.

(23) remains the same but is renumbered (22).

(23) "Total inorganic phosphorus" means the sum of all orthophosphates, as P, in an unfiltered water sample. Total inorganic phosphorus may also be determined by direct colorimetry. The RRV for total inorganic phosphorus is 3 micrograms per liter.

(24) "Total nitrogen" means the sum of all nitrate, nitrite, ammonia, and

organic nitrogen, as N, in an unfiltered water sample. Total nitrogen in a sample may also be determined by persulfate digestion, or as the sum of total kjeldahl nitrogen plus nitrate plus nitrite.

(25) "Total phosphorus" means the sum of orthophosphates, polyphosphates, and organically bound phosphates, as P, in an unfiltered water sample. Total phosphorus may also be determined directly by persulfate digestion.

(24) through (25) remain the same but are renumbered (26) and (27).

~~(26)~~ (28) The board adopts and incorporates by reference:

(a) Department Circular DEQ-12, entitled "Montana Base Numeric Nutrient Standards and Nutrient Standards Variances," Part A (September 2012 edition), which establishes numeric water quality standards for total nitrogen and total phosphorus in surface waters.

~~(a)~~ (b) Department Circular DEQ-7, entitled "Montana Numeric Water Quality Standards" (August 2010 edition), which establishes water quality standards for toxic, carcinogenic, bioconcentrating, ~~nutrient,~~ radioactive, and harmful parameters and also establishes human health-based water quality standards for the following specific nutrients with toxic effects: nitrate; nitrate + nitrite, and nitrite;

(b) through (d) remain the same but are renumbered (c) through (e).

REASON: The proposed amendments to ARM 17.30.702 will modify current definitions in the nondegration rules and will add new definitions necessary for the implementation of numeric nutrient standards. "Base numeric nutrients standards" have been added to the list of definitions from §75-5-103, MCA that are incorporated by reference. Definition (17)"Nutrients" is being repealed because it is not consistent with the use of the term in circular DEQ-12 (which contains standards for total nutrients). The two soluble compounds currently listed under (17) are found in DEQ-7 and, there, linked to the eutrophication narrative standard via footnote 8. These compounds are being superseded by the total nutrients in DEQ-12 Part A and will be removed from DEQ-7. Further, definition (17) added no clear value to the nondegradation rules because, where needed, specific nutrient compounds or forms (e.g., TKN, nitrate as N) are named or referenced in the nondegradation rules. The new definition at (23), "total inorganic phosphorus" is added here because its equivalent form ("phosphorus, inorganic") and associated RRV will be deleted from DEQ-7 as part of the overall movement of eutrophication-oriented nutrient standards to DEQ-12. This compound is only referred to in the nondegradation rules at ARM 17.30715(2)(e) and there is no concentration limit associated with it; therefore, only a required reporting value (RRV) is provided here. The RRV has been modified (from 1 µg/L to 3 µg/L) to reflect routinely-achievable levels and is consistent with RRV derivation methods currently used for compounds in circulars DEQ-7 and DEQ-12. New definitions (24) and (25) correspond to those discussed above for amendments to ARM 17.30.602. In new (28)(a), circular DEQ-12 with a date is provided to assure that readers are using the most current version. In (28)(b), the department circular DEQ-7 definition has been amended for the same reasons described above for ARM 17.30.602.

17.30.715 CRITERIA FOR DETERMINING NONSIGNIFICANT CHANGES IN WATER QUALITY (1) The following criteria will be used to determine whether certain activities or classes of activities will result in nonsignificant changes in

existing water quality due to their low potential to affect human health or the environment. These criteria consider the quantity and strength of the pollutant, the length of time the changes will occur, and the character of the pollutant. Except as provided in (2), changes in existing surface or ground water quality resulting from the activities that meet all the criteria listed below are nonsignificant, and are not required to undergo review under 75-5-303, MCA:

(a) activities that would increase or decrease the mean monthly flow of a surface water by less than 15% or the seven-day 10 year low flow by less than 10%;

(b) discharges containing carcinogenic parameters or parameters with a bioconcentration factor greater than 300 at concentrations less than or equal to the concentrations of those parameters in the receiving water;

(c) discharges containing toxic parameters ~~or nutrients~~, except as specified in (1)(d) and (e), which will not cause changes that equal or exceed the trigger values in department Circular DEQ-7. Whenever the change exceeds the trigger value, the change is not significant if the resulting concentration outside of a mixing zone designated by the department does not exceed 15% of the lowest applicable standard;

(d) and (e) remain the same.

(f) changes in the quality of water for any harmful parameter, including parameters listed in DEQ-12 Part A, for which water quality standards have been adopted other than ~~nitrogen, phosphorous, and~~ carcinogenic, bioconcentrating, or toxic parameters, in either surface or ground water, if the changes outside of a mixing zone designated by the department are less than 10% of the applicable standard and the existing water quality level is less than 40% of the standard;

REASON: The proposed amendments to ARM 17.30.715 will allow the department to calculate nonsignificant changes in water quality for the base numeric nutrient standards in circular DEQ-12 Part A. If adopted by the board, base numeric nutrient standards will preclude the need to use the narrative standards at ARM 17.30.637(1)(e) to interpret eutrophication-based water quality impacts from nutrients. Base numeric nutrient standards are intended to control eutrophication (see definition of eutrophication in Overview), and at the concentrations found in circular DEQ-12 Part A the department considers base numeric nutrient standards to be harmful parameters. Therefore, DEQ-12 Part A is incorporated into (f), the section of the nondegradation rules addressing nonsignificance specific to harmful parameters. Nitrogen compounds at concentrations that ARE toxic, e.g. nitrate at 10 mg/L, will remain in DEQ-7 (as discussed earlier) and toxics-based nonsignificance criteria applicable to such compounds will continue to be applied to them. The strike-out in (c) corresponds with the retaining of toxic-level nitrogen compounds in DEQ-7, and the move of eutrophication-based nitrogen and phosphorus standards to DEQ-12 Part A.