BEFORE THE BOARD OF ENVIRONMENTAL REVIEW
OF THE STATE OF MONTANA

In the matter of the amendment of ARM 17.30.201, 17.30.507, 17.30.516, 17.30.602, 17.30.619, 17.30.622, 17.30.623, 17.30.624, 17.30.625, 17.30.626, 17.30.627, 17.30.628, 17.30.629, 17.30.635, 17.30.702, and 17.30.715 pertaining to permit application, degradation authorization, and annual permit fees, specific restrictions for surface water mixing zones, standard mixing zones for surface water, definitions, incorporations by reference, A-1 classification standards, B-1 classification standards, B-2 classification standards, B-3 classification standards, C-1 classification standards, C-2 classification standards, I classification standards, C-3 classification standards, general treatment standards, definitions, and criteria for determining nonsignificant changes in water quality	)	NOTICE OF AMENDMENT (WATER QUALITY)

TO: All Concerned Persons

1. On February 13, 2014, the Board of Environmental Review published MAR Notice No. 17-356 regarding a notice of public hearing on the proposed amendment of the above-stated rules at page 280, 2014 Montana Administrative Register, Issue Number 3.

2. The board has amended 17.30.201, 17.30.507, 17.30.516, 17.30.602, 17.30.622, 17.30.623, 17.30.624, 17.30.625, 17.30.626, 17.30.627, 17.30.628, 17.30.629, 17.30.635, and 17.30.702 exactly as proposed. It has amended ARM 17.30.619 as proposed, except that the reference to "Circular DEQ-12A, entitled 'Montana Base Numeric Nutrient Standards' (December 2013 Edition)" has been changed to "Circular DEQ-12A, entitled 'Montana Base Numeric Nutrient Standards' (July 2014 Edition)" to reflect the date of adoption of the circular and has amended ARM 17.30.715 as proposed, but with the following changes, stricken matter interlined, new matter underlined:

<u>17.30.619 INCORPORATIONS BY REFERENCE</u> (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) through (d) remain as proposed.

(e) Department Circular DEQ-12A, entitled "Montana Base Numeric Nutrient Standards" (~~December 2013~~ July 2014 edition), which establishes numeric water quality standards for total nitrogen and total phosphorus in surface waters.

(2) and (3) remain as proposed.

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) and (b) remain as proposed.

(c) discharges containing toxic parameters, ~~inorganic nitrogen, or inorganic phosphorus, 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) through (e) remain as proposed.

(f) changes in the quality of water for any harmful parameter, ~~including~~ and parameters listed in Department Circular DEQ-12A, except as specified in (1)(g), for which water quality standards have been adopted other than 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;

(g) for nutrients in domestic sewage effluent discharged from a septic system that does not require an MPDES or MGWPCS permit, 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 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;

(g) remains as proposed, but is renumbered (h).

(2) and (3) remain as proposed.

(4) If a court of competent jurisdiction declares 75-5-313, MCA, or any portion of that statute invalid, ~~or~~ if the United States Environmental Protection Agency disapproves 75-5-313, MCA, or any portion of that statute under 30 CFR 131.21, or if rules adopted pursuant to 75-5-313(6) or (7), MCA, expire and general variances are not available, then the significance criteria contained in (1)(g) are the significance criteria for total nitrogen and total phosphorus in surface water.

3. The following comments were received and appear with the board's responses:

COMMENT NO. 1: The rule proposes uniform, relaxed mixing zone standards. In contrast, EPA policy recommends that mixing zone characteristics be defined on a case-by-case basis after it has been determined that the assimilative capacity of the receiving system can safely accommodate the discharge. EPA also states that the assessment should take into consideration the physical, chemical, and biological characteristics of the discharge and the receiving system; the life history and behavior of organisms in the receiving system; and the desired uses of the waters.

RESPONSE: The proposed rules provide for the use of the entire 14Q5 flow in dilution calculations involving a standard mixing zone. The issue of appropriate mixing zones for base numeric nutrient standards was discussed during nutrient work group meetings and EPA was involved in the discussions. Although EPA's national policy is for case-by-case analysis, as noted by the commenter, much of the concern regarding such case-by-case analysis revolves around toxic compounds, which have both chronic and acute impact levels. Mixing zones are designed to make sure acute levels are not exceeded in the mixing zone, because this would harm any aquatic life present. In contrast, nutrients at the concentrations of the base numeric nutrient standards behave like chronic criteria and the changes to the mixing zone rules reflect this reduced potential for direct aquatic life impact.

COMMENT NO. 2: Endnote 4 in Department Circular DEQ-12A should be rephrased to clarify whether it applies to the development of permit limits or stream assessment for listing/delisting on Montana's 303(d) list. Further, it should be clarified that it is a monthly average, not a 30-day rolling average.

RESPONSE: The board agrees that this should be clarified. Section 2.2 of the circular states that permit limits for nutrient discharges are to be developed using the Average Monthly Limit (AML). Thus, the circular already provides, for permitting purposes, that the averaging timeframe (duration) for permitting nutrient discharges is 30 days. The board also agrees that the 30-day period should not be a rolling average. Section 2.2 has also been modified to provide that this is a calendar month.

In contrast to setting permit limits, when assessing a stream's ambient condition for 303(d) listing purposes, the department's monitoring and assessment unit collects nutrient samples throughout the growing season (a three-month period each year) and evaluates all data using statistical testing procedures. It does not restrict the evaluation to a calendar month. Footnote 4 has been updated to better reflect the monitoring and assessment process. It now reads: "The average concentration during a period when the standards apply may not exceed the standards more than once in any five-year period, on average." In relation to the duration and frequency requirements of the standards, it should be noted that, because permits are written to a shorter time frame (a calendar month), they are fully protective of the standard. In addition, the monitoring and assessment unit of the department evaluates biological data in concert with the nutrient concentrations to make a final assessment.

COMMENT NO. 3: Some commenters supported adoption of Flathead Lake TMDL Phase I targets as Flathead Lake water quality standards, but stated that a

document describing the technical and scientific support for the standards is needed first. Other commenters asked for postponement of the standards adoption for Flathead Lake pending a more thorough technical review and local stakeholder involvement.

RESPONSE: The board agrees that the standards for Flathead Lake should be postponed and that more details on the scientific and technical basis of the standards should be prepared. The standards for Flathead Lake have been removed from Department Circular DEQ-12A.

COMMENT NO. 4: Nutrient standards should be adopted for the Flathead River.

RESPONSE: Numeric standards for the Flathead River were not proposed in the notice of public hearing and, therefore, adoption of standards for that stream is not within the scope of this rulemaking. It would require commencement of a new rulemaking proceeding.

COMMENT NO. 5: Required reporting limits in Table 12A-3 of Department Circular DEQ-12A for total kjeldahl nitrogen (TKN) are not obtainable and should not be adopted in rule.

RESPONSE: The board agrees and has increased the required reporting value (RRV) for TKN from 150 µg/L to 225 µg/L. The board is aware that the typical practical quantitation limit for total kjeldahl nitrogen (TKN) is 0.5 mg/L, or 500 µg/L. However, this limit is not low enough to meet some nitrogen standards proposed in Department Circular DEQ-12A. If a reporting limit is greater than or equal to an applicable standard, state waters that have non-detectable levels of TKN may be unnecessarily listed as impaired and/or may have requirements for extensive sampling. This is why the board calculates an RRV for parameters which have numeric standards. The board has worked with the department and statewide analytical laboratories to derive the updated RRV. The board understands that this number is still very low and that conditions must be optimal in order to achieve this number. Reporting value concentrations higher than 225 µg/L may also be acceptable on a case-by-case basis, as indicated in Table 12A-3 of Department Circular DEQ-12A. Additionally, if a sample must be diluted, it is understood that the reporting limit will be raised.

COMMENT NO. 6: The board should consider expanding the period of application of the standards, where needed, because nutrient problems can manifest at times other than in summer/early fall due to low snowpack, early irrigation withdrawal, etc.

RESPONSE: The board is aware that eutrophied rivers and streams can manifest a period of excess algal growth in early spring prior to runoff. This has been observed in the Clark Fork River, for example. In western Montana, this algal growth is typically scoured away by the spring runoff and algal growth recommences in late June to early July. Application of nutrient standards is not necessary during the spring because spring is relatively short (typically a few weeks), generally before the main recreation season, and followed by a scouring period. Flow volume is not an appropriate factor for determining the end date for application of nutrient criteria.

After runoff ends, base flow begins and can be fairly uniform into November and December. However, regional climatic influences, such as lowered temperatures and light intensity, typically cause, by early October, major reductions in aquatic plant life growth, reductions in aquatic macroinvertebrate productivity, and higher dissolved oxygen concentrations. Essentially, the productive period for the year ends in the fall and the importance of nutrient concentrations to this productivity greatly declines. The proposed end dates for the period of application of the nutrient criteria reflect this.

COMMENT NO. 7: Site-specific criteria or modified periods of application should be used to tighten nutrient standards where it is apparent that nuisance algae are becoming worse or not improving.

RESPONSE: The board agrees. These changes would be made in another rulemaking proceeding that would be initiated once it is determined that the existing standards do not protect the use.

COMMENT NO. 8: In ARM 17.30.715(1)(c), the words "inorganic nitrogen, or inorganic phosphorus" should be deleted. If they are not, discharges of nutrients will be subject to the nonsignificance of both (1)(c) and (1)(f). Based on numerous meetings of the nutrient work group and early drafts, nonsignificance should be determined under (1)(f) using the base numeric nutrient standards rather than under the existing narrative standard.

RESPONSE: The board agrees. ARM 17.30.715(1)(c) has been modified so that nonsignificance will be determined under ARM 17.30.715(1)(f) for all discharges that require a surface or ground water permit. Additionally, for discharges that do not require one of those permits, but which undergo nondegradation review nonetheless, a new subsection, ARM 17.30.715(1)(g), has been added. This subsection retains the trigger value requirement as the initial criterion for significance. Retention of the trigger value will allow the department's subdivisions program, which has stringent deadlines for reviewing subdivisions, to continue to use an expeditious means of determining significance for small subdivisions. Failing this first test, the next test for nonsignificance will be the same as is found in ARM 17.30.715(1)(f); that is, a change is nonsignificant if the change is < 10% of the numeric nutrient standards and existing water quality is currently < 40% of those standards.

COMMENT NO. 9: Movement from the 7Q10 to the seasonal 14Q5 for nutrients is a poor policy choice. The board should stick with the 7Q10 for permitting base numeric nutrient standards.

RESPONSE: The low-flow design flow is chosen to ensure compliance with the water quality criteria. Given that the proposed criteria are to be permitted based on a 30-day average concentration and have an allowable excursion frequency of once in five years, it is overly restrictive to consider the 7Q10. When establishing permit limits, the 14Q5 ensures protection of the proposed criteria at a level that corresponds to the averaging period and allowable excursion frequency of the underlying criteria, while simultaneously providing a margin of safety because the low-flow averaging period is somewhat shorter (14 days instead of 30).

COMMENT NO. 10: A commenter pointed out that the nonseverability provision in ARM 17.30.619 is triggered by the expiration of the general variance rules, while the nonseverability provision in ARM 17.30.715 is not. The commenter stated that this should be a trigger in both rules. Several other commenters stated that the board should modify the nonseverability clauses to be triggered if EPA objects to or vetoes a permit based on the inclusion of a variance.

RESPONSE: The board agrees that the triggers for both provisions should be the same and has added the expiration of the variance rules to the nonseverability provision in ARM 17.30.715.

The board has not included the permit trigger. If EPA disapproves the general variance, the nonseverability provisions would apply. Once EPA approves the general variance, EPA would not have authority to object to or veto a permit for an existing discharger based on inclusion of general variance limits in the permit. In written comments on this rulemaking, EPA has indicated that variances may be available to new dischargers as long as existing uses are protected. EPA personnel have indicated to department personnel that inclusion of the permit trigger for nonseverability would likely result in EPA rule disapproval. Should this occur, the narrative standards would be reinstated. However, narrative standards are implemented in a permit by imposition of numeric limits and it is possible that a court would hold that the proper application of the narrative standards results in the same numeric permit limits as the numeric standards would require. However, because the variance provisions of 75-5-313, MCA, take effect only upon adoption of numeric standards, that statute would not be available to new or existing dischargers in those instances.

COMMENT NO. 11: The rules should clarify implementation of nondegradation for existing and future permits. The board should recognize the seasonal nature of the nutrient standards when implemented in permits and nondegradation provisions.

RESPONSE: Nondegradation requirements do not apply to existing permittees unless they become increased sources, as defined in ARM 17.30.702(18). For new or increased sources, as defined in ARM 17.30.702(18), nondegradation for base numeric nutrient standards will be applied following ARM 17.30.715.(1)(f), (1)(g), (2), and (3). If this process results in a finding that degradation will occur, the applicant can apply for an authorization to degrade.

Department Circular DEQ-12A clearly provides that the standards are seasonal in nature. The department would, therefore, be legally bound to recognize this seasonal nature in permitting, including application of nondegradation.

COMMENT NO. 12: Applying criteria "as an average, not to be exceeded more than once in any three-year period, on average" needs clarification.

RESPONSE: The allowable excursion frequency (once in five years in this case) is referred to "on average" in order to accommodate datasets longer or shorter than the specified five-year period. For example, if the dataset were ten years long, standards exceedences would be allowed twice in that period (2/10 years, equal to 1/5), but not three times.

COMMENT NO. 13: The rules should be clarified to show that these seasonal nutrient standards will not be applied to storm water discharges.

RESPONSE: All discharges, including storm water discharges, are subject to water quality standards, whether those standards are narrative, as the nutrient standards are currently structured, or numeric, as is proposed for nutrients.

COMMENT NO. 14: The overall nutrient standards package (including variances) cannot result in a regulatory moratorium on new business in Montana.

RESPONSE: The purpose of the variance process is to assure that the economic effects of nutrient standards will not cause a regulatory moratorium on new business in Montana. In turn, the rules that have been developed to implement the statute reflect this intent. Variances can be granted to new businesses so long as the new dischargers show that the variance protects the existing use.

COMMENT NO. 15: Is a nuisance threshold for algae, as determined by public opinion polling in Montana, an appropriate standard to determine impact to beneficial use?

RESPONSE: A scientific poll of Montanans' opinions regarding what constitutes a nuisance algae level is appropriate for establishing a water quality standard. All Montana surface waters have bathing, swimming, and recreation as part of their legally defined beneficial uses. To determine when this interrelated set of uses was harmed, it was necessary to identify at what point the Montana public felt that their recreation was impaired by excess attached algae. Increased growth of attached algae is one of the most common manifestations of excess nutrients in regional streams and was, therefore, appropriate to consider. Attached algae is very commonly measured via its chlorophyll a content and the department has standard operating procedures to do so. The public-opinion survey showed that there was a clear threshold at 150 mg chlorophyll a per square meter of stream bottom. Algae levels above this impacted peoples' desire to fish, wade, swim, and boat (page 135, Suplee et al., 2009), which are all common recreational activities in Montana.

Montana is not alone in using this approach. In 2010/2011, the state of Utah carried out its own recreational survey to determine the opinion of the Utah public regarding algae levels in streams. They arrived at identical conclusions and thresholds as were found in Montana. The state of Vermont is planning to carry out its own algae recreation-impact public survey starting this summer. The focus will be the recreational use of Vermont streams. Similar approaches have also been used to establish phosphorus standards to protect water clarity and recreational use in lakes (Lake Champlain, for example).

COMMENT NO. 16: Department Circular DEQ-12A should include language which indicates that future violations of the numeric nutrient standards should only be considered in context with the nuisance algae threshold for algae in streams at that time.

RESPONSE: The requested rule change is not necessary as it is already being done via standard operating procedures used by the department's monitoring and assessment section (the group that evaluates whether or not a stream is impaired by nutrients). Since 2010, assessment of Montana streams has required

collection of nutrient samples along with algae samples and other biological measurements. All the data are considered together, and a few high nutrient samples do not necessarily mean the stream will be found to be impaired by nutrients; it depends on the degree to which the biological measurements show impairment as well. The standard operating procedure (nutrient assessment method) for this process may be found on the department's web site at: http://deq.mt.gov/wqinfo/qaprogram/sops.mcpx.

COMMENT NO. 17: All stream classifications (e.g., the A-1 class at ARM 17.30.622) have been amended to include Department Circular DEQ-12A and also the option for a person to receive a nutrient standards variance from the standards in Department Circular DEQ-12A. In the three REASONS for these amendments (on pages 289 and 290) the language should be changed from "nutrient standards limits" to "the department's authority to grant variances from the numeric standards for permittees."

RESPONSE: The commenter's proposed language would have been appropriate. However, the term "limits," as used in the sentence, is also appropriate, because a variance will establish a discharge limit for a permittee at a higher concentration than the limit that would be required in order to meet the base numeric nutrient standards.

COMMENT NO. 18: Numeric nutrient standards are arbitrary and capricious and do not account for the concept of bioavailability.

RESPONSE: The board does not agree with the comment. In the development of the base numeric nutrient standards, extensive and detailed reviews of the scientific literature were carried out in order to understand the effect of nutrients in waterbodies. The department also carried out pertinent scientific research on its own. All the proposed standards have gone through independent academic peer-review and the peer-reviewer's comments were addressed prior to the criteria being proposed as standards. Further, regarding the nutrient criteria, a common theme across the spectrum of commenters (i.e., pro, con, neutral) was that the criteria have a solid technical and scientific basis behind them.

Regarding bioavailability, in flowing-water systems a large proportion of the nutrients, often more than 50 percent, are bound in organic forms, which can be utilized and re-mineralized by bacteria and made available to other aquatic organisms (like algae). It is for this reason that total nutrients were selected as standards, because total nutrients best reflect the total available pool of nutrients that are, or have the potential to become, available to participate in eutrophication. Some fraction of total nutrients may comprise compounds which are not readily bioavailable. However, what these compounds are, and how "unavailable" to biota they actually are, is a subject of unsettled scientific debate. The subject of non-bioavailable compounds was discussed several times during the meetings of the nutrient work group, but no change to the base numeric nutrient standards resulted.

COMMENT NO. 19: The board should not adopt standards that cannot be achieved.

RESPONSE: Under both state and federal law, water quality standards must protect the uses of the water. The Legislature anticipated that nutrient standards that protect the use of the waters would not be immediately achievable. By providing for nutrient standards variances, the Legislature provided a process that allows adoption of standards that meet legal requirements and a process that alleviates negative impacts on dischargers by providing variances for up to 20 years to achieve compliance with those standards.

4. The amended circular may be viewed at and copied from the department's web site at http://deq.mt.gov/wqinfo/Standards/default.mcpx. Also, copies may be obtained by contacting Carrie Greeley at Department of Environmental Quality, P.O. Box 200901, Helena, MT 59620-0901; by phone at (406) 444-6749; or by e-mail at CGreeley@mt.gov.

5. No other comments or testimony were received.

Reviewed by: BOARD OF ENVIRONMENTAL REVIEW

/s/ John F. North
JOHN F. NORTH
Rule Reviewer

By: */s/ Robin Shropshire*
ROBIN SHROPSHIRE
Chairman

Certified to the Secretary of State, July 28, 2014.