Version 6.8

Montana Department of
ENVIRONMENTAL QUALITY

DEPARTMENT CIRCULAR

DEQ-12B

Nutrient Standards Variances

DRAFT

GENERAL INTRODUCTION

This circular (DEQ-12B) contains information about variances from the base numeric nutrient standards. This information includes details on effluent treatment requirements associated with general nutrient standards variances, as well as effluent treatment requirements for individual nutrient standards variances and to whom they apply.

Circular DEQ-12A contains the base numeric nutrient standards' concentration limits, where the standards apply, and their period of application. Circular DEQ-12A is in a separate document also available from the Department. Circular DEQ-12A is adopted by the Board of Environmental Review under its rulemaking authority in §75-5-301(2), MCA. Unlike DEQ-12A, DEQ-12B (this circular) is not adopted by the Board of Environmental Review. DEQ-12B is adopted by the Department following its formal rulemaking process, pursuant to §75-5-313, MCA.

The Department has reviewed a considerable amount of scientific literature and has carried out scientific research on its own in order to derive the base numeric nutrient standards (see References in DEQ-12A). Because many of the base numeric nutrient standards are stringent and may be difficult for MPDES permit holders to meet in the short term, Montana's Legislature adopted laws (e.g., §75-5-313, MCA) allowing for the achievement of the standards over time via the variance procedures found here in Circular DEQ-12B. This approach should allow time for nitrogen and phosphorus removal technologies to improve and become less costly, and to allow time for nonpoint sources of nitrogen and phosphorus pollution to be better addressed.

DRAFT

Circular DEQ-12B

DECEMBER 2013 EDITION

1.0 Introduction

Elements comprising Circular DEQ-12B are found below. These elements are adopted by the Department following the Department's formal rulemaking process. Montana state law (§75-5-103 (22), MCA and 75-5-313, MCA) allows for variances from the base numeric nutrient standards (found in Circular DEQ-12A) based on a determination that the base numeric nutrient standards cannot be achieved because of economic impacts, the limits of technology, or both.

1.1 Definitions

1. **Monthly average** means the sum of the daily discharge values during the period in which the base numeric nutrient standard applies divided by the number of days in the sample. See also, "*Technical Support Document for Water Quality-based Toxics Control*," Document No. EPA/505/2-90-001, United States Environmental Protection Agency, 1991.

2.0 General Nutrient Standards Variances

Because the treatment of wastewater to base numeric nutrient standards in 2011 would have resulted in substantial and widespread economic impacts on a statewide basis (§75-5 -313 (5)(a), MCA), a permittee who meets the end-of-pipe treatment requirements provided below in **Table 12B-1** may apply for and the Department shall approve a general nutrient standards variance ("general variance") (§75-5 -313(5)(b), MCA). The Department will process the general variance request through the discharge permit and include information on the period of the variance and the interim requirements. A person may apply for a general variance for either total phosphorus or total nitrogen, or both. The general variance may be established for a period not to exceed 20 years. A compliance schedule to meet the treatment requirements shown in **Table 12B-1** may be granted on a case-by-case basis. The final permit limit will be expressed as a load only.

Cases will arise in which a permittee is or will be discharging effluent with nitrogen and/or phosphorus concentrations lower than (i.e., better than) the minimum requirements of a general variance, but the resulting concentrations outside of the mixing zone still exceed the base numeric nutrient standards. Such permitted discharges are still within the scope of the general variance, because the statute contemplates that a general variance is allowable if the permittee treats the discharge to, **at a minimum**, the concentrations indicated by §75-5-313(5)(b)(i)and (ii), MCA. Thus, permitted discharges better than those at §75-5-313(5)(b)(i)and (ii), MCA, are not precluded from falling under a general variance. In a permitted discharge, the interim limits provided for under a general variance (or an individual variance) will apply, even if such limits differ from those that might otherwise apply based on

a wasteload allocation derived in a Total Maximum Daily Load (TMDL). The interim limits will apply during the time period over which the variance is applicable.

Table 12B-1. General variance end-of-pipe treatment requirements per §MCA 75-5 -313(5)(b), through May 2016.

	Monthly Average	
Discharger Category[1]	**Total P (µg/L)**	**Total N (µg/L)**
≥ 1.0 million gallons per day	1,000	10,000
< 1.0 million gallons per day	2,000	15,000
Lagoons not designed to actively remove nutrients	Maintain current performance	Maintain current performance

[1] See Endnote 1

The Department must review the general variance treatment requirements every three years to assure that the justification for their adoption remains valid. The review may not take place before June 1, 2016, and must occur triennially thereafter. The purpose of the review is to determine whether there is new information that supports modifying (e.g., revising the interim effluent treatment requirements) or terminating the variance. If a low-cost technological innovation for lowering nitrogen and phosphorus concentrations in effluent were to become widely available in the near future, for example, the Department could (after May 2016) make more stringent the concentrations shown in **Table 12B-1**. If, after May 2016, the Department were to adopt general variance treatment requirements more stringent than those provided in **Table 12B-1**, revised effluent limits will be included with the permit during the next permit cycle, unless the demonstrations discussed in **Section 3.0** below are made. A compliance schedule may also be granted to provide time to achieve compliance with revised effluent limits.

The Department (and the Nutrient Work Group) will consider whether or not more cost-effective and efficient treatment technologies are available when determining whether the general variance treatment requirements must be updated in accordance with §75-5-313(7)(a) and (b), MCA. The review will occur triennially and will be carried out at a state-wide scale, i.e., the Department will consider the aggregate economic impact to dischargers within a category (the > 1 MGD category, for example).

Based on the triennial review preliminary findings and conclusions, the Department will issue a solicitation for public comment on the nutrient concentrations and conditions associated with the three general variance categories. The proposal will solicit comments from the public on whether the general variances should be: (1) re-adopted without changes, (2) re-adopted with changes, or (3) terminated. Based on the review conclusions and the public comment, the Department will draft final findings and

conclusions. If the findings and conclusions indicate that the general variance(s) should be modified or terminated, the Department will initiate rulemaking to do so.

2.1 Wastewater Facility Optimization Study

Permitees receiving a general variance are required to evaluate current facility operations in order to optimize nutrient reduction with existing infrastructure and shall analyze cost-effective methods of reducing nutrient loading including, but not limited to, nutrient trading without substantial investment in new infrastructure (§75-5-313(9)(a), MCA). The Department encourages permittees to examine a full array of reasonable options including, but not limited to, facility optimization, reuse, recharge, and land application. The Department may request the results of the optimization/nutrient reduction analysis within two years of granting a general variance to a permittee.

Changes to facility operations resulting from the analysis carried out as above are only intended to be refinements to the wastewater treatment system already in place. Therefore, optimizations:

1. should only address changes to facility operation and maintenance and should not be structural changes;
2. should not result in rate increases or substantial investment; and
3. must include exploration of the feasibility of nutrient trading within the watershed.

How the analysis is to be conducted, and by whom, is left to the discretion of the permittee. The Department encourages the use of a third-party firm with expertise in this subject.

3.0 Individual Nutrient Standards Variances

The following sections describe (1) the basis for an individual variance, and (2) an alternate method for deriving appropriate interim effluent limits for an individual discharger. For both of these types of individual variances, the final permit limit will be expressed as a load only.

3.1 Individual Variance Based on Substantial and Widespread Economic Impacts

Montana law allows for the granting of nutrient standards variances based on the particular economic and financial situation of a permittee (§75-5-313(1), MCA). Individual nutrient standards variances ("individual variances") may be granted on a case-by-case basis because the attainment of the base numeric nutrient standards is precluded due to economic impacts, limits of technology, or both. Individual variances discussed in this section are generally intended for permittees who would have financial difficulties meeting the general variance concentrations and are seeking individual nitrogen and phosphorus permit limits tailored to their specific economic situation.

Like the general variance in **Section 2.0**, individual variances may be established for a period not to exceed 20 years and must be reviewed by the Department every three years to ensure that their justification remains valid. Unlike the general variances discussed in **Section 2.0**, the Department will

only grant an individual variance to a permittee after the permittee has made a demonstration to the Department that meeting the underlying standards would require water quality-based controls that result in substantial and widespread social and economic impacts. The variance application will identify the lowest effluent concentration that is feasible based on achieving the highest attainable condition. A permittee, using the assessment process referred to above, must also demonstrate to the Department that there are no reasonable alternatives including, but not limited to, trading, compliance schedules, reuse, recharge, and land application that would allow compliance with the base numeric nutrient standards. If no reasonable alternatives exist, then an individual variance is justifiable and becomes effective and may be incorporated into a permit following the Department's formal rulemaking process. Like any variance, individual variances must be adopted as revisions to Montana's standards and submitted to EPA for approval. Individual variances the Department may adopt in the future will be documented in **Table 12B-2** below.

Since the basis of this type of individual variance is related to the economic status of a community or permittee, at each triennial review the Department will consider if the basic economic status of that community or permittee has substantially changed. The same parameters used to justify the original individual variance will be considered. If new, low-cost nutrient removal technologies have become widely available, or if the economic status of the community or permittee has sharply improved, the basis of the variance may no longer be justified. In such cases the department will discuss with the permittee the options going forward including, but not limited to, a permit compliance schedule, trading, reuse, recharge, land application, or a general variance.

Based on the triennial review preliminary findings and conclusions, the Department will issue a solicitation for public comment on the individual variances. 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) terminated. Based on the review conclusions and public comment, the Department will draft final findings and conclusions. If the findings and conclusions indicate that the variance(s) should be modified or terminated, the Department will initiate rulemaking to do so.

3.2 Individual Variance Effluent Limits Based on Site-specific Water Quality Modeling

Generally, the interim effluent limits in any variance, general or individual, will be based on achieving the highest attainable condition within the receiving water. In some cases a permittee may be able to demonstrate, using water quality modeling and reach-specific data, that greater emphasis on reducing one nutrient (target nutrient) will achieve the highest attainable condition, since it would produce comparable water quality and biological conditions in the receiving water as could be achieved by emphasizing the reduction of both nutrients (i.e., both nitrogen and phosphorus). Requiring such a permittee to immediately install sophisticated nutrient-removal technologies to reduce the non-target nutrient to levels as stringent as what is in statute at §75-5-313(5)(b), MCA, would not be the most prudent nutrient control expenditure and could cause the discharger to incur unnecessary economic expense. In such a case, the interim effluent limits for the individual discharger may be adjusted to reflect greater emphasis on controlling one of the parameters, so long as the highest attainable

condition is maintained within the receiving water. The permittee will be required to submit the demonstration with the proposed interim effluent limits to the Department for review and will be required to provide monitoring water quality data that can be used to determine if the justifications for the interim effluent limits continue to hold true (i.e., status monitoring). Because status can change, for example due to substantive nonpoint source cleanups upstream of the discharger, status monitoring by the discharger is required.

The nutrient concentrations identified via this modeling may eventually be adopted as site-specific standards under the Board of Environmental Review's rulemaking authority in §75-5-301(2), MCA, but would require an analysis of their downstream effects prior to adoption.

DRAFT

Table 12B-2. Table for individual variances that may be adopted.

MPDES Number	Facility Name	Discharge Latitude	Discharge Longitude	Receiving Waterbody	Receiving Waterbody Classification	Monthly Average Total P (µg/L)	Monthly Average Total N (µg/L)	Start Date	Sunset Date (maximum)	Review Schedule (year)	Review Outcome

DRAFT

4.0 Endnotes

(1) Based on facility design flow.

DRAFT