MEMORANDUM

SUBJECT: August 2014 Montana Nutrient Water Quality Standards Submission
Additional Analysis Regarding Individual Dischargers

FROM: Martin Hestmark, Assistant Regional Administrator
Ecosystems Protection and Remediation Program

TO: The File

DATE: February 26, 2015

After receipt of the above August 2014 Montana submission, the EPA conducted additional analysis regarding the list of specific individual dischargers submitted by the State as covered by the variance provisions of the submitted package. This list includes both public and private sector dischargers that Montana considered in their economic analysis. The EPA evaluated which of the dischargers were located on water bodies to which the numeric nutrient criteria (NNC) did not apply and thus would not receive the varied effluent limitations in their NPDES permits. The varied effluent limitations do not apply to water bodies for which only the narrative water quality criteria is applicable and do not apply facilities covered by a general NPDES permit unless dischargers apply for and receive effluent limits different than those in the general permit. The EPA also plotted the locations of each of the dischargers submitted by the State against the most recent EPA-approved Clean Water Act Section 303(d) list of impaired waters and waters with completed nutrient TMDLS to identify which of the dischargers would need to meet the numeric nutrient criteria with end-of-pipe effluent limitations. Based on available information, the EPA evaluated which of the dischargers could likely meet the numeric nutrient criteria as a result of dilution in the receiving water body using an NPDES discharge permit that would include a mixing zone. Finally, the EPA reviewed NPDES permits recently proposed by Montana that included the numeric nutrient criteria and variances.

EPA's analysis identified the following:

Rationale	# of Dischargers
Narrative criteria apply; general variance not authorized	32
Discharger covered by a general permit; general variance not authorized.	26
Permit terminated	7
Permit indicates facility is nondischarging	5
EPA reviewed the draft permit	3
Discharger located on impaired water. NNC must be met end of pipe	38

Rationale	# of Dischargers
Nutrient limits included in existing permits reflect older TMDLs or anti-degradation (non-degradation) review. Will likely need to achieve lower values based on NNC.	5
Not likely to have reasonable potential to violate WQS because facility dischargers into a large river (e.g., Yellowstone River)	7
Permit indicates no mixing zone is allowed; assuming end-of-pipe for TN and TP	42
Facility may have dilution to meet NNC	12
Total	177

Note: The total number of dischargers is greater than the 157 included in the state's economic analysis because some dischargers fell into multiple "categories". For example, a discharger may be covered by a general permit and located on a waterbody listed as impaired for nutrients.

- 32 dischargers located on water bodies to which the numeric nutrient criteria did not apply and therefore variances were not available;
- 26 dischargers were covered under a general permit and therefore variances were not available;
- 7 dischargers whose permit has been terminated;
- 5 facilities that are not currently discharging or have recently moved to land application;
- 3 permits (including one facility that is land applying) that were reviewed by the EPA.
- 38 dischargers located on water bodies included on the most recent CWA Section 303(d) list of impaired water bodies;
- 5 dischargers with permit limits for TN and TP based on older nutrient TMDLS or an antidegradation review. These facilities will likely have to achieve lower limits based on meeting the NNC;
- 7 dischargers located on larger rivers (i.e., Yellowstone) that are likely not to have the reasonable potential to violate the NNC;
- 42 dischargers where the current permit language state that no mixing zone is allowed; therefore, the EPA is assuming no dilution is available; and
- 12 dischargers located on water bodies that may be able to meet the numeric nutrient criteria end of pipe due to dilution in a mixing zone.

This analysis indicates that, of the 157 dischargers included in the state's economic analysis, only 99 dischargers are covered by the general variance as approved by EPA in today's action. Based on this information, the EPA added the following language to the action letter:

> "The EPA notes that an estimated thirty dischargers included in the state's economic analysis discharge into non-wadeable rivers for which numeric nutrient criteria have not yet been derived or adopted. Based on ARM 17.30.660(1), it is the EPA's understanding that these facilities would continue to be subject to Montana's existing narrative criterion instead of the NNC and therefore the EPA's approval of general variances today does not include these dischargers. Additionally, the state's economic analysis included dischargers currently covered

> by a general permit for domestic sewage lagoons. EPA's approval of general variances today does not apply to these lagoons because they are not yet subject to the NNC.

Of the dischargers covered by the general variance after EPA's approval, a total of 80 dischargers (67%) will likely be required to meet the NNC at the end-of-pipe because they discharge into an impaired waters and/ or the existing permit suggests they discharge into an intermittent stream where no mixing zone is allowed.

Lastly, the EPA reviewed the available water quality data and assessment decisions for the 12 dischargers where dilution may exist and the other 42 dischargers where no mixing zone is allowed for existing WQS. This analysis examined whether available data for the receiving waters indicate nutrient impairment or if these waters have not yet been "assessed" by MDEQ. Results of this coarse-level screening analysis indicated that all receiving waters were either currently unassessed or lack sufficient data to meet MDEQ's recently updated data sufficiency requirements. In 2011, MDEQ modified their data sufficiency requirements to require a minimum of 12-13 nutrient samples per assessment unit (stream segment) for listing and delisting purposes. The state bases its impairment decisions on a set of statistical analyses that consider both the number of exceedances and observations of elevated nutrient concentrations (Student's t-test), even with smaller datasets. [1] Additionally, the state's assessment method requires collection of benthic chlorophyll-a data and will assess a waterbody as impaired for nutrients based on a single exceedance of the chlorophyll-a threshold established to protect recreational uses.[2] Therefore, many waters that were evaluated for nutrient issues before 2012 may have insufficient data to make an impairment decisions but new data and information for these waterbodies may result in nutrient-impairment determinations which may result in end-of-pipe permits.

The EPA is currently working with the state to review early drafts of permits that include the NNC and general variance limits. MDEQ is still working through the implementation details for nutrient variances, and is currently handling such issues on a case-by-case basis.

The EPA has committed to work with MDEQ to improve the implementation of the NNC and variances in permits so the state's process is transparent and to vet issues that arise in development of the permits. In addition, the EPA has recommended development of a checklist that would be used for review and development of general variance limits in permits. To address site-specific permitting issues that may arise in the future but cannot yet be predicted, the EPA added the following language to the action letter:

> If at the time of permitting, Montana determines that, based on site-specific facts and details (e.g., dilution, alternatives to discharge, installing less expensive treatment technology), the individual discharger can meet the NNC, then the discharger would have limitations based on the underlying NNC or a compliance schedule to achieve the NNC-based limits as soon as possible. This approach is consistent with Montana's regulatory language that dischargers are eligible for up to 20 years, but, presumably, could be for shorter duration, should the state determine that is appropriate. Another option would be for the discharger to apply for an

---

[1] Suplee, M.W., and R. Sada de Suplee, 2011 Assessment Methodology for Determining Wadeable Stream Impairment Due to Excess Nitrogen and Phosphorus Levels. Helena, MT: Montana Dept. of Environmental Quality.
[2] Id.

individual variance based on a site-specific demonstration that the discharger cannot afford to meet such NNC-based limits.