REPORT TO THE ENVIRONMENTAL QUALITY COUNCIL ON PROGRESS TOWARD NUMERIC NUTRIENT STANDARDS FOR MONTANA'S SURFACE WATERS

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EXECUTIVE SUMMARY

Excess nutrients (nitrogen and phosphorus) released to surface waters can result in adverse effects on water quality such as nuisance algae growth, undesirable changes in aquatic life, and reductions in dissolved oxygen which impacts fish. The Department of Environmental Quality (Department) has been working to manage nutrient enrichment of Montana waters and one of its efforts has been the development of numeric nutrient standards for surface waters. Scientific work has been completed for Montana's wadeable streams and some large river segments, while work continues for other waterbodies (large rivers, lakes, reservoirs). Through the development of these scientifically-grounded numeric standards, it became clear that in some regions (notably western Montana) the standards would be quite difficult to meet. If all communities had to meet the nutrient standards in one step, the costs would be too high and/or the technology might not currently be available. Therefore, the Department investigated options for implementing the standards in a staged manner. The idea was that if communities and other entities could begin working towards the nutrient standards in steps, the standards could ultimately be achieved, given that technologies generally improve and become less expensive over time. It would also allow the Department time to address nonpoint sources of nutrient pollution. The Department concluded that a temporary variance process, which would provide discharger-specific permit limits which differ from the standards for a defined time period, could work effectively for implementing the standards.

The Department did not have clear legal authority to grant the variances as envisioned, and worked to introduce a bill into the 2009 legislature to provide that authority. The bill (SB 95) passed, and included the creation of a Nutrient Work Group (NWG), convened by the Department, and whose role is to provide the Department advice on the standards and their implementation. The NWG comprises a broad array of Montana interests, from agriculture to municipalities to industry to environmental groups. Meetings are open to the public and have been well attended. By 2011, the Department—in consultation with the NWG—had identified several issues with the variance processes in SB 95. As a result, new legislation was drafted for the 2011 session and SB 367 was a direct result of the

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collaboration between the Department and the NWG, and addressed the complexities associated with individual variances, economics, and wastewater treatment. The key change provided by SB 367 was the allowance for general variances, which most dischargers will be able to meet and which preclude the need for case-by-case Department analysis (which is necessary for individual variances). SB 95 and SB 367 are now codified at 75-5-313, MCA.

Subsequent to the of amendment of 75-5-313, MCA by SB 367, the Department and the NWG met twelve more times to work through remaining challenges with implementing the standards. Issues that occupied a large fraction of the discussions were (1) how the general variance treatment requirements would change over the next 20 years, (2) details on how the standards and variances would be implemented in discharge permits, (3) the availability of general and individual variances to new dischargers, and (4) finalization of the rules. By late 2013 the Department and the NWG had come to general agreement on the draft rules, and the Department requested initiation of rulemaking from the Board of Environmental Review (Board) at its January 21, 2014 meeting (initiation was granted). Per 75-5-313, MCA, the Department is responsible for some aspects of the nutrient rules (those which pertain to variances) and therefore the Department's rule adoption is paralleling the Board's. A public hearing for both the Board and Department rules was held March 24th, 2014, and was well attended. At the hearing, strong opposition and strong support for the rules were generally absent; rather, there was relatively mild opposition and qualified support, and much of the testimony revolved around specific technical and legal issues (e.g., bullet 3 above). The public comment period ended April 1st and the Department documented 43 comments (written and oral) and has addressed the comments. The Department provided the Board a briefing on the rules at its May 30th meeting, and returned to the Board on July 25th to request adoption of the rules. On July 25th the Board approved the nutrient criteria rulemaking with the proposed modifications in response to comments. Likewise, on July 25th the Department approved the nutrient variance rulemaking with modifications as a result of response to comments. This fulfills the statutory requirement (75-5-313(6)(b),MCA) that the Department adopt the general variance categories and concentrations by May 31, 2016. The Adoption Notice for both rulemakings was published on August 7th, 2014. Therefore, on August 8, 2014 the nutrient rule package took affect within Montana. As with any proposed modification of the State's water quality standards the Department submitted the rule modifications to EPA for their review and approval.

1.0 INTRODUCTION

A review of the scientific, technical, and legal aspects of the numeric nutrient standards is provided.

1.1 BACKGROUND AND HISTORY OF NUMERIC NUTRIENT STANDARDS DEVELOPMENT IN MONTANA

Controlling the undesirable effects on water quality caused by the release of excess nutrients (nitrogen and phosphorus) into state waters has long been an important concern of the Department. In the mid-1970s and into the 1980s, citizen complaints about excessive algae growth in the Clark Fork River led, in 1998, to a pioneering voluntary agreement among dischargers to reduce nutrient loading to that river. The goal of the agreement was to achieve ambient nutrient concentration targets and bottom-attached algae limits during summer months. These concentrations and algae limits for the Clark Fork River were subsequently adopted into state law in 2002 (ARM 17.30.631).

Narrative water quality standards that address nutrient effects (e.g., nuisance aquatic life) were adopted for all state waters decades ago, but the fact that narrative standards are general statements, rather than specific numbers, has limited their application. Beginning in 2000, the Department has worked actively to develop numeric nutrient standards for all state waters. This work is motivated by the Department's long-standing desire to address this significant form of water pollution, as well as by an Environmental Protection Agency (EPA) plan, initiated in 1998, to encourage states to adopt numeric nutrient standards for all of their surface waters.

Many difficult technical problems had to be addressed in order to develop numeric nutrient standards. Unlike other water quality standards, which are commonly developed in laboratories and then promulgated by EPA for the entire nation, it was expected that nutrient standards would be developed at the regional/local scale and would be different for different waterbody types. This is because nutrient concentrations vary naturally in the environment, due to factors such as local geology, soil types, and vegetation, and this fact needed to be accounted for in developing the standards. The specific manner in which excess nutrient problems manifest themselves in different waterbody types also had to be sorted out.

Throughout the 2000s the Department carried out a number of scientific studies and analyses, all intended to determine how nutrients detrimentally affected the quality of state waters (e.g., how much bottom-attached algae is excessive), and to determine the appropriate concentrations needed to prevent these problems. As of this writing, work has been essentially completed for wadeable streams. Large rivers (e.g., Yellowstone River, Missouri River) were found to be too unique to place into waterbody groups (i.e., for common treatment), and therefore the Department is addressing them case by case. Work on lakes and reservoirs is also proceeding. A number of the key technical reports prepared by the Department to support this work can be found at: http://deq.mt.gov/wqinfo/standards/NumericNutrientCriteria.mcpx.

Around 2005 it became very apparent that the scientifically-derived nutrient concentrations being developed by the Department were going to be very low (i.e. stringent), particularly in some regions of the state. It also became apparent that some of the nutrient concentrations the Department was considering were at or below levels that can be readily achieved by practical wastewater technologies of today. It is known that as one attempts to achieve lower and lower nutrient concentrations, the cost to do so goes up exponentially. In other words, if all towns were made to meet nutrient standards in one step, the costs might be too high and/or the technology might not be currently available. The Department began investigating options for implementing the standards in a more staged manner. The idea was that if communities and other entities could begin to work towards the nutrient standards in steps, the standards could ultimately be achieved, given that technologies generally improve and become less expensive over time. This would also allow the Department more time to address nonpoint sources of nutrient pollution. The Department commissioned two studies to evaluate the cost of various treatment technologies, as well as the mechanisms by which the standards could be implemented in stages. The studies, and consultation with EPA, revealed that a temporary variance process with discharger specific permit limits for a defined period of time could work effectively for implementing these standards.

1.2 SENATE BILL 95 (75-5-313, MCA)

Consultation with Department legal staff revealed that the Department did not have clear legal authority to allow the case-by-case, discharger-by-discharger variances envisioned. Temporary water quality standards were already part of state law (75-5-312, MCA; ARM 17.30.630). But these laws allow for temporary changes of standards along an entire reach of stream; their intent is that less stringent standards can realistically be met during instream remediation procedures (e.g., to remove mine waste), after which the original standards are re-instated. In contrast, the Department envisioned a process for nutrient standards whereby the standards, once adopted, would remain the same along the stream so that the public and stakeholders would clearly know what the standards are. However, individual dischargers could (as needed) apply for discharger-specific variances from the standards. By this mechanism dischargers could remain in compliance with their permits as they moved, over time, towards meeting the standards, while simultaneously the Department worked with nonpoint source nutrient contributors in the watershed. The Department's intent is that the process allows for incremental progress towards the standards on all fronts (point and nonpoint source). The Department penned a draft bill which was sponsored by then-MT Senator John Brueggeman (R) from Senate District 6. The bill was passed, and was codified at 75-5-313, MCA. Among its provisions, the law requires that the Department consult with a Nutrient Work Group (NWG). The Department, in consultation with the NWG:

"…shall develop guidelines to ensure that the economic impacts from base numeric nutrient standards on public and private systems are equally and adequately addressed. In developing those guidelines, the department and the nutrient work group shall consider economic impacts appropriate for application within Montana and may also consider relevant guidance of the United States environmental protection agency pertaining to analysis of economic impacts from water quality standards."

Even prior to the bill's passage (since September 2008), the Department had been working with an informal stakeholder group (Nutrient Criteria Affordability Advisory Group) to address many of these cost-related issues. This predecessor group developed a detailed affordability assessment process for publically owned treatment works (POTWs) based on EPA guidance. When the NWG was created by statute and met for the first time in May 2009, many of its members had also served on the earlier, informal group.

Senate Bill 95 also allowed for nutrient trading. The Board of Environmental Review (Board) adopted a nutrient trading policy in 2012 and the Department has already used its provisions for some Montana communities.

1.3 THE NUTRIENT WORK GROUP

The Nutrient Work Group (NWG) comprises members representing the following groups or entities:

- Agriculture and livestock
- Conservation districts
- Environmental organizations
- Financing and grant agencies (state-level)
- Forestry
- Manufacturing
- Municipalities (water and wastewater)

- Oil and gas
- Railroad
- Real estate
- Wastewater engineering
- Mining

The Department also provides to the NWG non-voting members whose primary roles are as technical and policy experts. The meetings have been run and arbitrated by a non- governmental arbitrator. In assembling NWG members, the Department actively solicited a broad range of Montana interests so that conclusions arrived at by the group would be, hopefully, acceptable to a large number of Montanans. Meetings are open to the public and are well attended with public members typically doubling the original meeting size. Constructive public input is allowed throughout the meeting, and often leads to enhanced understanding of topics.

Since the last Department report to the EQC in June 2013, the NWG has met four times (the last of which was November 8, 2013) meetings have focused on methods the Department would use to set site-specific nutrient standards when needed, and resolution of details associated with the rule packages to be adopted by the Board and Department. Further details on these issues are provided in **Section 2.0** and **3.0** of this document.

1.4 SENATE BILL 367 (75-5-313, MCA)

Senate Bill 367 (passed in 2011) resulted directly from meetings between the Department and the NWG, held from 2009 to 2011. Through these meetings, the need for SB 367 became apparent as there remained—in spite of SB 95—significant issues that would make nutrient standards implementation difficult. Senate Bill 367 addressed these issues and modified 75-5-313, MCA. The bill was sponsored by MT Senator Chas Vincent (R) from Senate District 1. Senate Bill 367 added several key provisions to statute:

- In addition to the individual variances established in SB 95, SB 367 directed the Department to grant "general" variances with permit limits established in statute. The general variance is divided into 3 categories based on discharge flow. These limits sunset on May 31, 2016 and have to be adopted in rule by the Department by that date;

- SB 367 directed the Department (in consultation with NWG) to develop new categorical variance numbers in rule immediately after May 31, 2016;

- SB 367 established that immediate compliance with numeric nutrient standards would result in a substantial and widespread economic impact to the State of Montana;

- SB 367 directed the Department to revisit the variance process on a 3-year interval, and update the concentration levels of the general variance in conjunction with the triennial review;

- SB 367 indicated that permittees receiving a variance shall evaluate current facility operations 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; and SB 367 provided

- A confidentiality clause protecting proprietary information.

2.0 KEY ISSUES AND CONCERNS SINCE JUNE 2013

As noted above, since the June 2013 report to EQC the NWG has met four times. The last of these meetings focused on (1) how site-specific nutrient standards might be established for specific streams (where needed), (2) defining—upfront—the nutrient-reduction steps that would occur under the auspices of the general variance, so as to provide regulatory certainty to MPDES permit holders, (3) sorting out which text would be adopted as rules and which text would be retained as Department policy/guidance, (4) changes to the mixing zone rules to address nutrient discharges, and (5) finalizing language in the draft rules, including the details of a non-severability clause. The clause, which is included in the proposed rules, would essentially vacate the numeric nutrient standards if a court declares 75-5-313, MCA invalid, or if EPA disapproves the rule package (EPA has final approval authority over rules operating under the Federal Clean Water Act).

Progress at NWG meetings accelerated as the Department made clear that it intended to propose the rules for adoption in late 2013 or early 2014. Nutrient Work Group members had an opportunity to review the draft rules in October 2013. At its final meeting on November 8, 2013, not every member felt that all issues were completely resolved, but other members felt that their concerns were sufficiently addressed by the rules. The final draft rule package was provided to NWG members in December 2013.

3.0 RULE ADOPTION AND FUTURE EFFORTS

On July 25th the Board approved the nutrient criteria rulemaking with the proposed modifications in response to comments. Likewise, on July 25th the Department approved the nutrient variance rulemaking with modifications as a result of response to comments. This fulfills the statutory requirement (75-5-313(6)(b),MCA) that the Department adopt the general variance categories and concentrations by May 31, 2016. The Adoption Notice for both rulemakings was published on August 7th, 2014. Therefore, on August 8, 2014 the nutrient rule package took affect within Montana. As with any proposed modification of the State's water quality standards the Department submitted the rule modifications to EPA for their review and approval.

Now that the rules are adopted, the Department will hold internal training to assure that the inclusion of variances in MPDES permits proceeds smoothly. The Department is also planning to hold an external training so that those involved with developing permits (e.g., consulting engineers) will have a solid understanding of the different variances available, how they function, etc.