

DEQ Nutrient Work Group 14th Meeting Summary September 29, 2011

Introductions

A list of the members of the Nutrient Work Group (NWG) and others in attendance is attached below as Appendix 1.

Agenda

- Review of the June 16, 2011 Meeting Summary
- George Mathieus Comments
- Report on the September 1, 2011 Sub-Committee Meeting
- Review of the Public Sector Substantial and Widespread Analysis Demonstration
- DEQ Nutrient Dose-Response Study
- Updated Wadeable Stream Criteria
- Summary of WPIC and EQC Presentations
- Updated Time Frame for Rule Making
- NWG Work Plan
- Public Comment
- Meeting Schedules

Review of the June 16, 2011 Meeting Summary

NWG members present at this meeting had no comments on the June 16 meeting summary.

George Mathieus Comments

George Mathieus responded to comments he has received about the progress of the NWG. Because accomplishing specific tasks in the full NWG meetings has been difficult, DEQ recommended forming sub-committees to address the hottest topics, including the demonstration of the significant and widespread economic impacts of numeric nutrient standards on public and private sector treatment plants. The sub-committee that met on September 1, 2011 included most of the participants in the full group meetings and did not address the details of the significant and widespread impact demonstration. As will be discussed at this meeting, DEQ has incorporated advice from the NWG and has made progress on the demonstration for the public sector, but not for the private sector. The latter is more complicated and EPA's guidance concerning it is more vague than for the public sector. EPA has hired a contractor to assist it with assessing the economic impacts of numeric nutrient standards on the private sector. DEQ is aware that a key issue for the private sector is impacts on individual plants in Montana versus the parent companies and the need to keep certain economic information proprietary. DEQ therefore proposes forming a sub-committee with fewer participants to work on the details of the significant and widespread impact demonstration.

Comment - We had agreed to form a private sub-committee to meet over this past summer, but it was not formed and did not meet.

Comment - The September 1 sub-committee was a good meeting and was well attended. It addressed the agenda proposed by DEQ staff. Sub-committee meetings should be open to anyone wishing to attend.

Response - I did not mean to criticize the September 1 meeting. However, I believe that a smaller group may be more efficient, particularly in addressing technical issues.

Comment - The number of meeting participants is less important than the meeting agenda and focus.

Comment - Without an opportunity to examine and understand the data being developed by the EPA contractor, Abt Associates, the job of the private sub-committee will be difficult. We will need plant specific data.

Response - DEQ appreciates that focusing on Montana plants makes sense. We have not seen the EPA contractor data.

Comment by Tina Laidlaw - EPA Headquarters only recently initiated Abt's work related to the economic impact of numeric nutrient standards on private sector plants. The contractor is pulling together information that may be useful for the impact demonstration.

Question - What is the timetable for EPA's contractor?

Answer by Tina Laidlaw - Preliminary results may be available by the end of October. We will share them with the NWG and/or its sub-committee.

Question - What process is being used by the EPA contractor?

Answer by Tina Laidlaw - The contractor is using 1995 EPA guidance and developing cost information using the Standard Industrial Classification (SIC) coding system.

Answer by Dr. Jeff Blend - The contractor is addressing three issues, profitability, solvency, and liquidity. It is examining how compliance with numeric nutrient standards would impact company profitability and the ability to borrow money.

Comment - I may have anti-trust issues with participating in a small group process. I need to know what questions the sub-committee would address.

Response - If the sub-committee is formed, we will identify the questions.

Report on the September 1, 2011 Sub-Committee Meeting

Dr. Mike Suplee reported on the meeting of the sub-committee convened to discuss technical issues related to implementation of Senate Bill 367. A summary of the meeting is posted on the NWG web page at: <http://deq.mt.gov/wqinfo/NutrientWorkGroup/default.mcp.x>.

At the sub-committee meeting, Dr. Suplee provided an update about DEQ-EPA discussions related to the three types of variances from the base numeric nutrient standards authorized by SB367: a general, statewide variance; individual variances; and alternative variances for permittees demonstrating that meeting the nutrient discharge limitations for the other two variance types would result in an insignificant reduction in instream nutrient loading. He also summarized the efforts to demonstrate that the public and private sector statewide would experience substantial and widespread economic impacts from complying with the base numeric

nutrient standards. Dr. Suplee and Jenny Chambers discussed the process that would be used to obtain a variance from numeric nutrient standards.

Participants in the sub-committee meeting agreed to the following advice to DEQ concerning the agenda topics.

- The optimization study required by SB367 for permittees receiving an individual, general, or alternative nutrient standards variance should:
 - Address only changes to plant operation and maintenance and not structural changes;
 - Not result in rate increases; and
 - Include a look at possible nutrient trading.
- Who conducts the optimization study should be left up to the permit applicant.
- The variance process for public entities is acceptable, except for the EPA cost cap.
- The 2016 criteria review of treatment levels should include the following “check box” categories or actions:
 - Have treatment plant technology and cost improved?
 - Have TMDLs been adopted and implemented or non-point source Best Management Practices (BMPs) been applied in the watershed?
 - The substantial and widespread economic impact analysis should be updated;
 - A review should be conducted to determine if nutrient standards should be revised due to speciation and bio-availability; and
 - Have implementation steps for the existing criteria been taken?

Question - At the meeting, DEQ agreed to identify the entities to which the public variance would not apply. Have you done so?

Answer - Not yet, but we will.

Review of the Public Sector Substantial and Widespread Analysis Demonstration

Dr. Jeff Blend provided the review using a PowerPoint presentation entitled, “[Demonstration of Significant and Widespread Impact to Montana WWTPs from Having to Meet Nutrient Criteria](#)”. The presentation is available on the NWG web page at the address cited above.

Question - Did you use 2010 census data?

Answer - We used 2010 census data for population and poverty rates. We used the American Community Survey to determine the Low and Moderate Income (LMI) Index. Unemployment data came from county data. We used Department of Revenue data to assess the local fee and tax burden.

Comment - While communities can obtain a variance from the base numeric nutrient standards, we still have to invest up to the 2% level to meet the intermediate levels as discharge levels are ratcheted down by our permits.

Response by Dr. Suplee - This is not completely true because the criteria review of treatment levels will likely include the check boxes discussed above. In addition to the general variance, a permit applicant may also seek an individual variance.

Response by Tina Laidlaw - EPA is working closely with DEQ on the variance for Publicly Owned Treatment Works (POTWs). We are not assuming a requirement that communities spend up to 2% to meet interim permit levels.

Question - Will the variances address nitrogen and phosphorus separately?

Answer by Dr. Suplee - Yes. An applicant could seek a general variance for one parameter and an individual variance for the other.

Question - Will you provide a scenario assessment tool to separate nitrogen and phosphorus?

Answer by Dr. Suplee - Possibly.

Question - If a municipality cannot meet the base numeric nutrient standards, will it have to repeat the significant and widespread economic impact demonstration in subsequent permit cycles?

Answer by Dr. Suplee - We expect that the significant and widespread test need be met only once; however, an applicant will be subject to the post-2016 criteria review to renew the variance.

Answer by George Mathieus - SB367 buys time to look at post-2016 levels and cost of technology.

Comment - While the variance to the base standards is positive, I am still concerned about the interim level spending requirements.

Question - What is DEQ's vision for the post-2016 criteria?

Answer by Dr. Suplee - We will look at affordability and limits of technology on a case-by-case basis. There may be break points on the technology capital cost curve. We will likely require a series of treatment steps reflecting the break points. We are operating under the premise that technology will improve and become cheaper.

Comment - It is difficult for engineers to predict technology and cost improvements.

Comment - I am not sure it makes sense to invest more if progress is not made to control non-point nutrient sources.

Question - Wouldn't it make more sense to set standards so people can meet them rather than pursuing variances?

Answer by Mike Suplee - The Clean Water Act requires that water quality standards be set to protect beneficial water uses without considering economics. State law also requires that water quality standards levels be based on science. The beneficial uses include aquatic life and aquatic uses, not just human safety and welfare.

Question - Does the Clean Water Act require numeric nutrient standards?

Answer by Mike Suplee - Standards must protect beneficial water uses. The only substantive difference between numeric and narrative standards is the number.

Answer by Tina Laidlaw – EPA has encouraged states to adopt numeric nutrient criteria.

Question - Is there a simpler way? Didn't Wisconsin set intermediate standard levels and provide for compliance schedules?

Answer by Mike Suplee - Wisconsin's approach is not simpler; standards must be met in three permit cycles with compliance schedules. In Montana, we are proposing variances in lieu of compliance schedules; we think they are more appropriate.

Answer by Jenny Chambers - Permits specify actions that must be taken to achieve compliance in 20 years. Controlling total phosphorus is feasible. Controlling total nitrogen is less manageable. We are proposing to grant a variance up front and look at what is reasonable in subsequent permit cycles. We have not defined permit levels needed to meet the base numeric standard because the standard criteria have not yet been adopted. These kinds of details must be set for the numeric nutrient standards.

Answer by George Mathieus - Variances allow more flexibility than compliance schedules.

Question - What authority does EPA exercise over DEQ permits?

Answer by Dr. Suplee - EPA's authority is derived from the Clean Water Act.

Question - Does the Clean Water Act allow 15 years to achieve compliance?

Answer by Jenny Chambers - For ammonia and compliance with other water quality standards, we are required to set a limit and ensure compliance within a 5-year limit in the permit, but EPA has allowed us to achieve standard compliance outside of the current permit.

Question - How do you see variances for basins with TMDLs?

Answer by Dr. Suplee - TMDLs are supposed to meet criteria. Permittees in basins with TMDLs may get variances from the numeric nutrient standards.

Question - What is the significance of the 2% score?

Answer - If the mean total pollution control cost per household is greater than 2% of the median household income (MHI), a permittee would be eligible for the variance.

Answer by George Mathieus - We do not know whether the current limits for discharges will apply after 2016. These limits are:

- For greater than 1 million gallons per day - 1 milligram total phosphorus per liter and 10 milligrams total nitrogen per liter; and
- For discharges of less than 1 million gallons per day of 2 milligrams total phosphorus per liter and 15 milligrams total nitrogen per liter.

We do not expect to hold permittees to the 2% MHI test after 2016.

Comment - Communities with a score of less than 2% MHI will have to continue to invest as standards are tightened.

Response - Communities may apply for an individual variance if they do not qualify for the general variance.

Comment - Colorado is developing a technology approach rather than a variance.

Response by Tina Laidlaw - Colorado intends to use a phased approach to water quality standards by basin for some waters in addition to implementing numeric effluent limits in permits that are based on Biological Nutrient Removal (BNR).

Question - So Colorado is not moving ahead with statewide numeric standards for all waters?

Answer by Tina Laidlaw – Colorado follows a 2-step process to adopting standards. The first step is to adopt table values, which is the step proposed for 2012. In subsequent basin reviews, the Commission may decide to adopt these interim values as water quality standards for segments upstream of dischargers, direct use water supply lakes/reservoirs, or in other unique circumstances.

Question - Will the variance be based on concentrations?

Answer by Jenny Chambers - If the standard is based on concentrations, then the permit will also be based on a concentration unless otherwise specified in rule package.

Question - Could we ask a sub-committee to examine the details of how to translate a concentration standard into a permit?

Answer by Mike Suplee - This is a chicken and egg problem. Before the rulemaking, we will walk through how the nutrient standard is translated into a permit.

DEQ Nutrient Dose-Response Study

Dr. Suplee discussed the results of a dose-response study of nutrients on Box Elder Creek in south eastern Montana using a PowerPoint presentation entitled, "[Some Results from a Nutrient Addition Study in a Northern Plains Prairie Stream](#)". This presentation is available on the NWG web page at the address cited above.

Question - Do the results of this study apply to western Montana streams and to large rivers?

Answer - They do not apply to large rivers, only wadeable streams. The results of this study should apply to western Montana streams - especially valley and foothill streams - with temperatures similar to Box Elder Creek.

Question - You noted that dissolved oxygen impacts probably occur in patches as a function of stream morphology and depositional characteristics and out of phase with peak algal growth in the fall when algae senesce en masse. Could this fact be used as the basis for a discharge strategy?

Answer - It might for dissolved oxygen. The results suggest that for *aquatic life* protection a 30-day duration for discharge averaging might be appropriate.

Question - Did you overlay stream flow with your results?

Answer - The flow during the dosing period was about 7 cubic feet per second (cfs) and bounced between 5 and 12 cfs.

Question - Did you monitor flows daily?

Answer - No; we monitored flow about every three days.

Question - What was the maximum chlorophyll a concentration in the low dose portion of the stream?

Answer - I think it peaked somewhat below 100 milligrams per m² (mg Chl_a/m²). (NOTE: actual value was subsequently checked and found to be 78 mg Chl_a/m²).

Question - Because fish can move, must the nutrient standard be met in every portion of the stream?

Answer - The standard does not address this phenomenon; however, we saw a significant decline in aquatic insect metrics in the high dose area; many aquatic insects cannot move as the fish can.

Question - Did the lowest dissolved oxygen measurements correspond to the lowest stream velocities?

Answer - No.

Question - What do your results mean for nutrient standards for eastern Montana streams?

Answer - We are still assessing the implications of the study results for standards.

Question - What was the source of the 150 mg/l algae standard?

Answer - The source was the recreation survey in which participants were shown a series of photos corresponding to different algae concentrations.

Question - What was the highest dosage achieved?

Answer - The highest dose rate was targeted to be 150 µg NO₃-N/L and 23 µg SRP/L. We achieved 119 µg NO₃-N/L, 17 µg SRP/L.

Updated Wadeable Stream Criteria

Dr. Suplee stated that he continues working on the wadeable stream criteria. For the Middle Rockies eco-region, the criteria may be about 0.03 mg/l of total phosphorus and 0.2-0.7 mg/l of total nitrogen. In the Absorkee volcanic geologic area, the total phosphorus number may be 0.13 mg/l. In this area the nitrogen levels are low so that algae levels will be controlled by nitrogen concentrations.

Summary of WPIC and EQC Presentations

George Mathieus summarized the presentations that he gave to the Water Policy Interim Committee (WPIC) and the Environmental Quality Council (EQC) on September 14. He provided a brief history of the DEQ's activities related to nutrient standards including SB95 enacted in 2009 and SB367 in 2011. He discussed the two meetings of the NWG since the end of the 2011 legislative session and the remaining tasks including the demonstration of the statewide significant and widespread economic impacts that would result from the numeric nutrient standard adoption. He also described how DEQ is working closely with the EPA region and headquarters. He mentioned EPA's concerns with the alternative variance set out in SB367. DEQ sees progress because EPA's original dozen concerns with SB367 have been reduced to two.

Updated Time Frame for Rule Making

George Mathieus and Dr. Suplee discussed an updated schedule for adoption of the nutrient rule package by the Board of Environmental Review. The previous goal of February 2012 will likely not be met. A target of mid-2012 is more likely.

NWG Work Plan

Three groups of topics remain:

- Completion of the technical topics set out on page 4 of the June 16 meeting summary;

- Demonstrating the statewide significant and widespread economic impact for the private sector to support the general variance to the numeric nutrient standards; and
- Writing the rule and demonstrating how the nutrient standards it contains would be translated into permit decisions.

DEQ will convene a sub-committee to address the private sector significant and widespread economic impact demonstration on November 2, 2011 from 8:30 to noon at a room in Helena to be announced. The agenda for the meeting including the questions that DEQ will ask the group to address will be emailed to the NWG list prior to the meeting. The sub-committee will report to the full NWG. The next NWG meeting in December will address the three groups of topics. Future meetings may be necessary to conclude the group's consideration of them.

Comment - I will need to discuss the rule language with the groups that I represent. I would like, therefore, to have the draft rule six weeks prior to the next NWG meeting.

Question - Will the rule address wadeable streams, large rivers, and lakes?

Answer - DEQ is nearing completion of its technical consideration of the wadeable streams, the lower Yellowstone, and Flathead Lake. The upper Missouri work will not be completed until next summer.

Comment - The NWG established a sub-committee to work on nutrient trading. This work is not finished.

Response - The trading sub-committee did meet and developed comments on the DEQ draft policy. DEQ responded to the comments it received. An internal DEQ meeting will happen soon to consider finalizing the policy.

Public Comment

There was no additional public comment.

Meeting Schedules

The next meeting of the NWG was set for Tuesday, December 13. (NOTE: this date was subsequently changed to Dec 15th after NWG group consent, due to room availability at DEQ.) The private sector sub-committee will meet on Wednesday, November 2. All meetings will be in Helena at locations to be announced.

Appendix 1
NWG Attendance List
September 29, 2011

Members

Scott Murphy	Morrison-Maierle, Inc.
Brian Sugden	Plum Creek
John Wilson	City of Whitefish - MLCT
Chris Brick	Clark Fork Coalition
Dave Aune	Great West Engineering
Dick Hoehne	Town of Philipsburg - MLCT
Chris Brick	Clark Fork Coalition
Don Allen	WETA
Michael Perrodin	BNSF Railway
John Rundquist	City of Helena - Montana League of Cities and Towns (MLCT)

Alternate Members

Doug Parker	Hydrometrics (alternate for Debbie Shea)
Kate Miller	Montana Department of Commerce (alternate for Jim Edgcomb)

Non-Voting Members

Dr. Mike Suplee	DEQ, Water Quality Standards Section, Water Quality Specialist
Dr. Jeff Bland	DEQ Economist

Other Meeting Participants

George Mathieus	DEQ Planning, Prevention and Assistance Division Administrator
Dave Clark	HDR
Judel Buls	AE2S, Inc.
Susie Turner	City of Kalispell
David Mumford	City of Billings
SE Leyne	Browning, Kaleczyc, Berry, and Hoven
Mike Jacobson	City of Great Falls
Ray Armstrong	DOWL HKM
Tina Laidlaw	EPA
Jenny Chambers	DEQ Water Protection Bureau Chief
Glenn Oppel	Montana Realtors
Claudia Massman	DEQ Attorney
Dave Galt	Montana Petroleum Association
Bill Mercer	Holland & Hart
Bob Bukantis	DEQ, Water Quality Planning, Water Quality Standards Section Supervisor

NWG Facilitator

Gerald Mueller	Consensus Associates
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