DEQ Nutrient Work Group
17th Meeting Summary
April 5, 2012

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 February 27, 2012 Meeting Summary
- Lagoons and Ammonia and Secondary Treatment Standards
- Review of the Private Sector Significant and Widespread Economic Impact Demonstration
- Discussion of the DEQ TMDL Procedures for Giving Consideration to Downstream Lake Nutrient Criteria
- Discussion of the Mass Versus Concentration Permit Specification
- Remaining Concerns from the Municipalities
- Review of DEQ-12 and Updated Criteria Recommendations
- Scientific and Technical Basis of the Numeric Nutrient Criteria for Montana's Wadeable Streams and Rivers Addendum 1
- Public Comment
- Next Meeting

Review of the February 27, 2012 Meeting Summary
NWG members present at this meeting had no comments on the February 27 meeting summary.

Lagoons and Ammonia and Secondary Treatment Standards
Dave Aune reported that about a dozen small communities are reviewing treatment options for their lagoon systems. Preliminary engineering reports for these systems are due on May 5, 2012. Because of upgraded ammonia water quality standards and the possibility of more stringent secondary treatment standards, the communities feel pressured to consider maximum treatment levels for their lagoons to address more stringent secondary standards or provide mechanical treatment to address ammonia. This situation also requires that communities anticipate the possible impact of future regulations regarding numeric nutrient standards and TMDLs. Some of the small communities are confused about whether the variances under nutrient standards would also apply to ammonia and secondary treatment. While these communities may be forced to look at nutrients in combination with ammonia and secondary treatment in the alternative analysis, nutrient variances would not apply to ammonia and secondary treatment requirements.

Comment by Jenny Chambers - We are discussing with permittees ammonia requirements and the potential targets for total nitrogen (TN) and total phosphorus (TP).

Question - Nitrites are covered in DEQ Circular 7 (DEQ7). This Circular ties nitrites to plant nutrient levels. Are there other reasons for the nitrite standard or will the nutrient provisions of DEQ7 go away when numeric nutrient standards are adopted?

Answer by Dr. Suplee - DEQ7 is being modified to remove the reference to nitrites. We will check to see if a need remains for a nitrite standard related to human health. (Follow-up: the 1 mg/L standard for nitrite in DEQ-7 is a human health standard and will remain unchanged.)

Comment - In addressing ammonia requirements, small communities may exhaust their financial capacity to upgrade their sewage treatment systems for a twenty year period. We are concerned about the potential changes to nutrient variances post-2016.

Review of the Private Sector Statewide Substantial and Widespread Economic Impact Demonstration

Dr. Jeff Blend provided the review using a PowerPoint presentation entitled "Demonstration of Substantial and Widespread Economic Impacts to Montana That Would Result if Base Numeric Nutrient Standards had to be Met by Entities in the Private Sector in 2011/2012."@This presentation is available on the NWG web page at the following web address.

http://deq.mt.gov/wqinfo/NutrientWorkGroup/Presentations/PrivateDemonstrationNWG.pdf

The paper setting forth the demonstration is available at the following web address.
http://deq.mt.gov/wqinfo/NutrientWorkGroup/PDFs/PrivateDemonstrationDRAFT_5.pdf

Question - Table 2 of your PowerPoint lists treatment costs for no removal of nitrogen (N) and phosphorus (P). Why do you have costs for no treatment?
Answer by Dave Clark - The Water Environment Research Foundation (WERF) study assumed construction of a water treatment plant from a green field (i.e., from the ground up) that would provide level 1 treatment, hence the treatment costs even assuming no N and P removal.

Comment - As treatment plant size decreases, operation and maintenance costs increase exponentially because fixed costs remain.
Response - DEQ recognizes that small plants lack the economies of scale, and we clearly note this in the demonstration that costs for small plants are underestimated. However the demonstration analysis does not use plant specific cost data.

Question - For refineries, you list annual investments of between $4.6 and $19.2 million to meet the standards. Is this range per refinery or an aggregate for all Montana refineries?
Answer - The cost is per refinery, not for the aggregate.

Question - You mentioned that EPA is reviewing your demonstration paper. Is this review limited to the local EPA office or has it moved up the chain of command?
Answer - We believe the review has involved more than the local office. Based on a conversation with EPA a couple of weeks ago, we do not expect EPA to have a lot of additional comments.

Question - You said that DEQ received only one comment from EPA initially on the demonstration. What was the nature of this comment?
Answer - The comment related mostly to style rather than the substance of the demonstration.

Question - You have now calculated separately the cost impact of the public and private sectors of complying with the proposed numeric nutrient standards. What is the cumulative total for the two sectors?

Answer - We have not planned to compile the cumulative result, but we could do so if needed. The widespread test is more the result of best professional judgment than a quantitative analysis.

Question - Have you made any material changes to the analysis you provided to EPA at the end of last year?
Answer - No.

Discussion of DEQ's TMDL Procedures for Giving Consideration to Downstream Lake Nutrient Criteria

Dean Yashan, DEQ Supervisor Watershed Management Section, discussed this topic. He explained that DEQ is not far enough along in developing TMDLs for specific projects involving a lake to define the procedure to consider downstream lakes. He summarized work underway. A TMDL is under development for Flathead Lake that may address this issue. The Kalispell treatment plant discharges its effluent into Ashley Creek and is subject to strict requirements. During the growing season a variance for this plant from the numeric nutrient standards may be appropriate. What would happen during the other nine months of the year has not yet been determined. The Flathead Lake TMDL may have two load allocations for the Kalispell treatment plant, one for the growing season and one for the remainder of the year. DEQ has not determined a waste load allocation or a reasonable treatment requirement for the Columbia Falls plant. This plant discharges directly to the Flathead River, which has a significant dilution capacity. The Big Fork treatment plant discharges close to Flathead Lake, but Big Fork has done a lot to treat its discharge. Over all, discharges within the Flathead Lake watershed are already controlled, and DEQ is not contemplating a flat reduction to all discharges in the watershed. Bozeman's waste load allocation in the lower Gallatin TMDL is not considering Canyon Ferry Lake.

Comment - Lakes are part of the crystal ball for municipalities considering treatment options. We are having trouble understanding how far upstream a treatment plant must be before a lake would affect nutrient discharge requirements.
Response - The TMDL group is working closely with Dr. Suplee to determine load limits. We expect that these limits would be phased in consistent with variances from the numeric nutrient standards. In the short term, Flathead Lake basin discharges are meeting or predominately working toward meeting the 10 milligrams total nitrogen per liter and 1 milligram total phosphorus per liter (10/1) limitations likely required as the first phase of the variance requirements. Two waste water treatment plant dischargers, Whitefish and the Flathead Biological Station, currently do not meet the 10/1. We are working with Whitefish, and will address the Flathead Biological Station in the near future. We are looking at models to check the extent and need for reductions to discharges during the winter and to evaluate the upstream question. (Note: After the meeting Dean reviewed the information for the Flathead Biological Station. The assessment that it was not meeting the 10/1 standard was based on older data. Within the past few years, its treatment has been upgraded and now satisfies the 10/1 values.)

Question - Have you seen seasonable variation in the modeling?
Answer - EPA conducted seasonal model for Florida.

Question - Do you have experience with the QAL2K model?
Answer - I have had some personal experience. Those doing the modeling within DEQ and for EPA have significant experience with it.

Comment - Because of the ammonia standard, treatment plants not discharging into impaired waters may need different treatment technology to address TP and TN.
Response - This is an important issue.

Comment - A city invests over a 20-year period, but permits are only for five years. Treatment upgrades may exhaust a city's bonding capacity.
Response - TMDL staff are a part of discharge permit discussions. I am unable to address a specific example without recent data.

Question - Will dilution be allowed upstream of an impaired stream reach?
Answer - The specific data will guide the answer. In the past, TMDLs addressed mostly non-point sources rather than permitted point discharges.

Comment - We have had few nutrient TMDLs. We need flexibility to address seasonal discharges in nutrient TMDLs. Maximum treatment levels should not necessarily be required.
Response - TMDLs completed to date have been simple. In the Little Blackfoot TMDL, we did not have point sources. Load allocations were made between agriculture and background only for the three month algal growing season. For the East Gallatin River TMDL, which involves a treatment plant discharging into low flow levels in the fall, we expect to mirror the numeric nutrient variance process by phasing in the load allocation.

Comment by George Mathieus - The nutrient standard package we provide to the Board of Environmental Review will address wadeable streams, large rivers, and lakes. TMDLs are being developed pursuant to a settlement agreement. Once the numeric nutrient standards are adopted, more action will occur on nutrient TMDLs.

Question - Will seasonality be an issue if a lake is downstream of a discharge?
Answer - This is a good question. We will need to assess whether a given discharge is as significant in January as it is in August. We may allow higher load allocations during the non-growing season for Flathead Lake and Canyon Ferry. We will also look at current discharge treatment levels to see if they are good enough.

Comment - I appreciate that you will be guided by data, and that permits will be considered individually.
Response - We want a consistent approach taking into account individual conditions.

Question - Do you have a feel for the time frame for nutrient TMDLs?
Answer - We are under a court order requiring TMDLs by 2014. We expect that they will be completed for western Montana, including the Flathead and Bitterroot basins, by 2014. The Gallatin TMDL should come out next month. Site specific nutrient standards may be developed for three large rivers, the Milk, Missouri, and Yellowstone, by 2016; completion of these site specific standards does not equate to completion of the TMDL although it is a major step toward TMDL completion.

Question - Will the numeric nutrient standard be the target for the nutrient TMDLs?

Answer - We now translate the existing narrative standard in developing TMDLs. Adoption of the numeric standard will make TMDL development easier.

Question - Since the numeric nutrient standard is not currently achievable, how will TMDLs address nutrients?
Answer - Wasteload allocations for point sources will be phased in consistent with nutrient standard variances. Nonpoint sources are not regulated.

Comment - Future growth is a concern for planning in the Flathead. For each additional 10,000 people, nutrient discharges will increase by 100 pounds.
Answer - For the Flathead, we do not know yet about a discharge cap. In general, I am not a big fan of such caps. Nutrient trading may be important for growth.

Comment - Columbia Falls and Big Fork together have spent $20 million on water treatment, and they are the smallest point sources in the watershed. Annual discharge limits to Flathead Lake will be a challenge.
Response - We will review the effects of current discharge levels, and we will phase in load allocations consistent with nutrient variances.

Question - Will TMDLs include a growth factor?
Answer - I am not sure. We may require use of the trading policy so that growing discharges can reduce discharges somewhere else.
Answer by George Mathieus - The TMDL program must address growth. At the end of the day, the TMDL plan must meet water quality standards and allocate loads to sources.

Question - The issue is, are load allocations made for current conditions and practices or do they incorporate a growth factor? If discharges are at maximum allowable values, must growth stop?
Answer - DEQ is not in the business of local land use planning. We are unsure who or how allocations would be made for growth.

Comment - This is a big deal for communities.

Comment - If cities know future requirements, they can make growth pay for itself through impact fees.

Comment - Watersheds include more than point sources. Dischargers in a watershed need to work together, so we are not just throwing money at a problem without getting results.
Response - DEQ looks at non-point sources through the TMDL program, but we do not have a regulatory mechanism to address them.
Response by George Mathieus - The good news is that for the last couple of years, we have had all players around the table. We are addressing this issue through education and outreach.

Question - Is the 303(d) impaired waters list based on the existing or propose nutrient standards?
Answer - The current list is based on the existing narrative nutrient standard. The total number of water bodies on the list has not been changing, and we do not expect the number impaired by

nutrients to change with the implementation of numeric nutrient standard. The new standards will provide a better method for evaluating streams.
Answer by George Mathieus - The 2012 303(d) list will be final soon. There will not be new additions to the list. We expect going forward a small decrease in the number of listed streams. Adoption of the numeric nutrient standard will not result in listing of all streams.

Question - Does SB367 provide a variance from the numeric nutrient standards in TMDLs?
Answer - Load and wasteload allocations are based on the standards. We expect that TMDL wasteload allocations in permitting will be phased in consistent with variances. We will keep an eye on upstream assimilative capacity. Answer by George Mathieus - The simple answer is yes, TMDLs will be based on variances.

Answer by George Mathieus - The simple answer is yes, TMDLs will be based on variances.

Question - If a discharge to a wadeable stream occurs upstream of a lake, can the discharger still get a variance?
Answer - Yes. Under certain conditions in which a TMDL has already been written prior to the variance process, a TMDL may be withdrawn, although this would not be preferred unless really necessary.

Question - Will a publically-owned treatment works (POTW) be allowed to discharge more than the minimum possible amount at the end of pipe if it can show that instream water quality standard would be met on a watershed basis in 20 years?
Answer - Permits are based on compliance with existing standards.

*Comment - The Missoula permit was based on the Voluntary Nutrient Reduction Program (*VNRP*).*
Response - We are re-evaluating the old permits that were based on the VNRP. The 10 milligrams total nitrogen per liter and 1 milligram total phosphorus per liter limitations are being met on the Clark Fork River. We will look upstream for the assimilative capacity.

Comment - Last week the Tri-State Implementation Council held a meeting focused on septics. Current legal incentives may increase the number of small septic systems.
Response - We are attuned to this concern.

Discussion of the Mass Versus Concentration Permit Specification

Jenny Chambers discussed this topic on behalf of Scott Murphy, who was unable to attend today's meeting.

At the February 27, 2012 meeting, Ms. Chambers reviewed the existing legal requirements related to mass versus concentration permit specifications. Section 17.30.1345 of the Administrative Rules of Montana (ARM) provides:

> (8)(a) All pollutant limited in permits must have limitations, standards, or prohibitions expressed in terms of mass except:
> (ii) when the applicable standard and limitation are expressed in terms of other units of measurement.

8(b) Pollutants limited in terms of mass additionally may be limited in terms of other units of measurement, and the permit must require the permittee to comply with both limitations.

As reported in the February 27 meeting summary, Ms. Chambers stated that based on this rule, a permit may have both mass and concentration, but never just mass if the standard is expressed in concentration. This ARM rule is based on the provisions of the Clean Water Act at 40.CFR122(4).

After the February meeting, Ms. Chambers and Mr. Murphy met with Dr. Suplee, Claudia Massman, Mark Bostrom, Todd Teegarden, Paul Skubinna and Jeff May to discuss possible permit flexibility including nutrient trading, land application and water re-use. Based on the discussion, Ms. Chambers concluded that while a permit must continue to be specified in terms of a concentration, it may specify two limits, one for the growing season and one for the winter. Such a permit would have to be based on the design of the system and a clear request by the permittee for the change in design flow for seasonal reuse options. She cited the following example. The POTW has a design inflow of 2.5 million gallons per day (Mgd). The POTW would discharge the full 2.5 Mgd during the winter, but limit discharges during the growing season when stream flows are lower to 1.5 Mgd by land applying 1 Mgd. In this manner the discharge concentration would remain the same, but the mass (pounds) of nutrient discharged during periods of low flow would be reduced. The permit would require the POTW to find other discharge alternatives to meet the 1.5 Mgd discharge limit if land application was not available. Thus, some options may exist in permit implementation.

Detailed Discussion of the Remaining Concerns from the Municipalities

After the February 27, 2012 NWG meeting, three representatives of municipalities, Dave Clark, Amanda McInnis, and David Mumford, met with George Mathieus to discuss municipality concerns. While municipalities are generally comfortable with SB367, they remain concerned about what may happen to the general variance post-2016. Mr. Mathieus agreed to form a small work group to develop implementation ideas concerning a watershed approach including both point and non-point nutrient sources and details for a process for changing the general variance. The work group will address both affordability, including the 1% of median household income (MHI) cost cap on expenditures to upgrade a wastewater treatment system, and reference points for the limits of technology. The work group will meet about every two weeks and will report its ideas to the full NWG. The work group deliberations may push back DEQ's schedule of presenting a rule making package of numeric nutrient standards and implementation steps for consideration by the Board of Environmental Review at its July 23, 2012 meeting.

Comment - I assume the small group would be open to participation by anyone wishing to do so.
Response - Notice of the meetings of the small group would be noticed on the NWG so that anyone wishing to attend may do so. The small group is intended to develop detailed proposals to present to the full NWG.

Comment - The Montana Petroleum Association will be proposing that the rule contain a non-severability provision. Non-severability would mean that if a court would strike down a portion of the rule such as the general variance provisions, the entire rule would be void.

Comment by George Mathieus - If anyone is contemplating legislative changes affecting the numeric nutrient standards or their implementation; please let DEQ and the NWG know.

Review of DEQ-12 and Updated Criteria Recommendations

Given the pending deliberations of the work group, discussion of DEQ Circular 12 and updated criteria for changing variance provisions post-2016 were deferred.

Scientific and Technical Basis of the Numeric Nutrient Criteria for Montana's Wadeable Streams and Rivers Addendum 1

Dr. Suplee provided an overview of the document updating DEQ's recommended numeric nutrient criteria, entitled *Scientific and Technical Basis of the Numeric Nutrient Criteria for Montana's Wadeable Streams and Rivers Addendum 1*. DEQ had circulated this document to the NWG via email prior to this meeting.

Question - You do not recommend criteria for the River Breaks area (43c). How will EPA look at areas with no recommended criteria?
Answer - I have not discussed this with EPA. I consider the recommended criteria numbers as very defensible, scientifically.

Question - Will this document be included in DEQ Circular 12?
Answer - Only Table ES-1, the recommended numeric nutrient criteria for different Montana ecoregions and stream reaches, will be included in DEQ Circular 12.

Public Comment

There was no additional public comment

Meeting Schedules

The next meeting of the NWG: Tuesday, May 29, 2012 from 10:30 a.m. to 5:00 p.m.

Appendix 1
NWG Attendance List
April 5, 2012

Members

John Wilson	City of Whitefish/Montana League of Cities and Towns (MLCT)
Shari Johnson	City of Polson and Ronan/MLCT
John Rundquist	City of Helena/MLCT
Michael Perrodin	BNSF Railway
Dave Aune	Great West Engineering
Brian Sugden	Plum Creek

Alternate Members

Doug Parker	Hydrometrics (alternate for Debbie Shea)
Bill Mercer	Holland & Hart (alternate for Dave Galt)

Non-Voting Members

Dr. Mike Suplee	DEQ, Water Quality Standards Section, Water Quality Specialist
George Mathieus	DEQ Planning, Prevention and Assistance Division Administrator
Dr. Jeff Bland	DEQ Economist

Other Meeting Participants

Dave Clark	HDR
Alec Hansen	Montana League of Cities and Towns
Bob Bukantis	DEQ, Water Quality Planning, Water Quality Standards Section Supervisor
Dean Yashin	DEQ, Watershed Management Section Supervisor
Tom Pick	USDA-NRCS
Claudia Massman	DEQ Attorney
Jenny Chambers	DEQ Water Protection Bureau Chief
Mike Jacobson	City of Great Falls
Randall Rappe	City of Great Falls
Travis Meyer	MMI
Judel Buls	AE2S, Inc.
Susan E. Laying	Browning, Kaleczyc, Berry & Hoven
Amanda McInnis	HDR (via telephone)

NWG Facilitator

Gerald Mueller	Consensus Associates