DEQ Nutrient Work Group
11th Meeting Summary
September 16, 2010

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

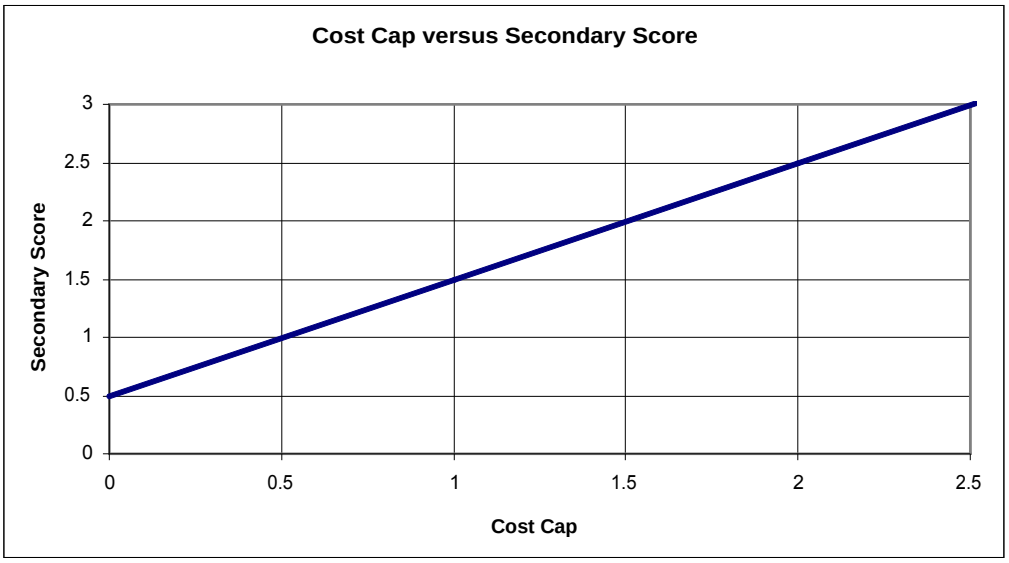
Agenda
- Review of the June 17, 2010 Meeting Summary
- EPA's View of the 1% MHI Affordability Cap
- Activities in Other States Regarding Adoption of Numeric Nutrient Criteria
- Nutrient Trading Policy
- Preliminary review of total organic carbon levels in the Yellowstone River and implications for numeric nutrient standards based on modeling
- NWG Work Plan
- Public Comment
- Next Meeting

Review of the June 17, 2010 Meeting Summary
NWG members present at this meeting had no comments on the June 17, 2010 meeting summary.

EPA's View of the 1% MHI Affordability Cap
George Mathieus introduced this topic. Two years ago, the Department of Environmental Quality (DEQ) convened the Nutrient Criteria Affordability Advisory Group (NCAAG) to consider an affordability variance from numeric nutrient standards. This group reached agreement that the variance should have a 1% of MHI cost cap, meaning that a community that has demonstrated that it would incur both substantial and widespread economic impact from complying with numeric nutrient standards would be expected to pay no more than 1% of their median household income to upgrade their wastewater treatment system for nutrient removal. One of the reasons for this agreement was the group's concern about the need for progress to address non-point sources as well as imposing new requirements on point sources. Because of push back from EPA about use of a 1% cap statewide, DEQ wrote to EPA on February 16, 2010 asking for clarification about EPA's position on a cost cap. On Monday of this week, Director Opper received a reply to the Department's letter. I have not yet had time to review and consider EPA's letter. A copy of its content is included below in Appendix 2.

Tina Laidlaw discussed the letter and EPA's position on the cost cap. The letter is signed by a Region 8 official, but it represents concurrence among EPA Headquarters and Region 8. EPA does not accept a statewide cap, preferring a case-by-case determination based on community specific factors. EPA agrees, however, that this determination should be based on upfront guidance so that a community can understand how to calculate its cost cap. EPA, therefore, developed the following chart showing a linear relationship between the cost cap and the secondary factors recommended by the NCAAG and accepted by DEQ. The chart is in EPA's

September 10, 2010 letter to DEQ Director Opper. This approach does not specify how a community would pay for upgrades to its sewage treatment plant. Grants as well as rate payer contributions could be used.



Secondary Score	***Cost Cap (% of MHI)***
1.0	*0.5*
1.5	*1.0*
2.0	*1.5*
2.5	*2.0*
3	*2.5*

Question - How would the secondary factors be determined?
Answer by Dr. Blend - The previous group developed socio-economic indicators of a community's well being. My memory is that the five factors included the community unemployment rate compared to the state rate, the community poverty rate, a measure of low to median income, the average MHI compared to the state value, and a measure of how much the community is now paying in various local fees. The latter is aimed at how much room community members have to pay additional fees for system improvements. We will review these factors and the methodology for calculating the secondary score at the next NWG meeting.

Comment - The factors Dr. Blend cited appear to be different than those listed on page 3 of the letter.
Response by Tina Laidlaw - The factors in the letter are incorrect. They should be the secondary factors agreed to by the NCAAG and DEQ.

Question - Will the secondary scoring be used for the affordability variance for the private sector?

Answer by Dr. Suplee - No.

Comment - Communities that must upgrade their sewage treatment plants must know the basis for designing the facility. Before the design basis can be determined, the communities must know what their MHI Affordability Cap is.

Question - Are there two sets of criteria for determining the secondary score, those developed by the NCAAG and EPA's 1995 guidance?
Answer by Tina Laidlaw - The NCAAG's secondary scoring factors were vetted through EPA Headquarters for the public sector. Unless DEQ modifies these factors, they would be the ones used to calculate the cost cap.

Question - A huge component of the NCAAG's agreement was the nutrient contribution of agriculture and septic systems. EPA does not address these contributions. Merely adding costs to cities will not solve nutrient problems. Has EPA looked at these contributions?
Answer by Tina Laidlaw - EPA acknowledges this issue.

Question - I am disappointed by EPA's response. When will EPA talk with us about the non-point issue?
Question - Will the secondary factors be a moving target?
Answer by Dr. Blend - The five factors that contribute to the secondary score represent a snapshot in time. Some change may occur.
Answer by Dr. Suplee - Data for these factors come from the US Census and will be updated with the Census.

Question - Am I correct that the MHI cost cap is not considered until after the substantial and widespread tests are applied?
Answer - Yes. Communities qualify for an affordability variance because compliance with the numeric nutrient criteria would result in substantial and widespread impacts. The cost cap then sets the maximum that the community would pay in trying to achieve the criteria.

Question - Do you have examples of application of the cost cap to Montana communities?
Answer by Dr. Blend - For the NCAAG, DEQ provided a limited number of examples.
Answer by Dr. Suplee - The score was based on Census derived information. We created Bell Curves for Montana communities. The curves broke around a secondary score of 2.

Comment - The Bell Curve of Montana communities may break around 2, but our incomes are less than the national average.
Response - We raised the Montana income concern with EPA in arguing for the 1% MHI cap.

Comment - Developing a cost cap spread sheet for Montana communities would be useful.
Response - We will see what we can do for the next NWG meeting.

Comment - I agree with the basic unfairness of addressing only the contribution of cities to nutrient controls. Subdivisions also contribute. We may, however, have to seek a statutory change to address non-point contributions and focus on prevention rather than remediation.

Focusing only on city nutrient contribution may limit economic activity. I am aware of a $1.5 million expansion of a church in Helena because of nutrient discharge issues.

Question - How recession proof is the secondary scoring?
Answer by Dr. Blend - They are somewhat recession proof because they compare individual community values with statewide averages.

Question - Does EPA's preference for case-by-case determinations for communities presage its position on a categorical approach for private sector variances?
Answer by Tina Laidlaw - I don't know. I am aware that Region 5 and Wisconsin have categorical variances in policy.

Comment - I don't see the EPA curve as an acceptable compromise because the average cost cap would be at 1.5% MHI.
Response by Tina Laidlaw - One of EPA's concerns was the national precedent set by a 1% statewide cap in Montana.

Question - Dr. Blend mentioned that one of the secondary factors was a community's room to pay additional fees. If it doesn't have much additional room, is the case for a variance weakened or strengthened?
Answer - Strengthened.

Comment - Before the cost cap is applicable, the community must pass the substantial and widespread impact test. My impression is that the substantial test is like a multiple choice test but the widespread test is like an essay test. The widespread test will be subjective.
Response by Dr. Blend - The widespread test is more subjective. We will review these tests and summarize the issues with them at the next NWG meeting.

Question - Would the EPA consider the percent of non-point nutrient contribution in determining a community's secondary score?
Answer by Tina Laidlaw - I will ask, but I suspect not. The cost cap is for a facility permit variance.

Comment - Senate Bill 95 acknowledged the contribution of non-point nutrient sources. EPA's approach to the cost cap contradicts this legislation.
Response by George Mathieus - There is not a contradiction. SB 95 affirmed the DEQ's authority to grant affordability variances.

Question - I am confused by the labels "not substantial" and "substantial" on the figure on page 4 of the letter. Does this assume an answer to the substantial impact test that is one of the precursors to setting the cost cap?
Answer by Tina Laidlaw - The use of these terms on the page 4 figure should not be confused with the substantial impact test. On page four, we were merely trying to explain the logic for the graph.

Comment by Tina Laidlaw - If as you read and digest the EPA letter, you have questions on it, please contact me so I can try to get answers prior to the next NWG meeting.

Activities in Other States Regarding Adoption of Numeric Nutrient Criteria

Using a PowerPoint presentation entitled "Status of State Nutrient Criteria Development Efforts", Tina Laidlaw reviewed the numeric nutrient criteria adoption activities for in Florida, Wisconsin, Kansas, Missouri, Cape Cod, Maine, New Jersey, Minnesota, West Virginia, Vermont, Virginia, Maryland, Minnesota, and Arizona. A copy of this presentation is available on the NWG web page at the following web page.

http://www.deq.mt.gov/wqinfo/NutrientWorkGroup/agendasMinutes/2010/Sept16/StatusStateCriteriaEfforts09_15_10.pdf

In addition, states in Region 8 are also taking steps towards adopting numeric nutrient criteria. Colorado plans to initiate rulemaking in June 2011. It provided draft criteria to a stakeholder work group in February 2010. Based on advice from the group, Colorado plans to revise the draft criteria in October 2010. Utah is scheduled to adopt numeric nutrient criteria for streams, rivers, and lakes in 2012-13. New Mexico is developing interpretive narrative nutrient criteria using a process similar to the NWG. Details about work in New Mexico, New Jersey, and Wisconsin are also provided in Appendix 3 below.

Agencies and universities in the six states of EPA Region 8 (CO, MT, ND, SD, UT, and WY) will host a three-day workshop in February 2011 exploring the science and institutional context regarding nutrients and water quality. It will be held on February 15-17, 2011 in Salt Lake City, Utah. The title of the workshop is "Nutrients and Water Quality: A Region 8 Collaborative Workshop."

Question - Does Wisconsin regulate non-point nutrient sources?
Answer - Wisconsin's rule apparently regulates non-point activities rather than specific instream discharges. Details are available at: https://health.wisconsin.gov/admrules/public/Rmo?nRmoId=4783

Question - What is Wisconsin's non-point enforcement mechanism?
Answer - Permit requirements.

Question - Does Wisconsin have phased numeric nutrient criteria?
Answer - No. The permits allow phased compliance but the Water Quality-Based Effluent Limits (WQEL) must be met at the end of a 15-year period.

Question - Has EPA approved Wisconsin's criteria?
Answer - EPA has not yet given its approval, but approval by Region 5 and Headquarters appears likely. Wisconsin has categories for variances, and I am not sure how EPA will rule on them.

Comment - Based on the numbers you showed us, Wisconsin's criteria would require 90% removal from the start if applied in Montana.

Question - Will EPA allow site specific criteria only if numeric nutrient criteria are adopted?
Answer - Site specific criteria may not be appropriate under all conditions.

Question - Does New Jersey specify total phosphorus values in permits?
Answer - New Jersey's current criteria have been in affect since the 1980s. Permits specify phosphorus levels but some site specific variations are allowed. EPA would not approve these levels today. EPA would require criteria for both nitrogen and phosphorus today.

Question - To what extent have some states looked at technology-based standards as alternatives or conjunction with instream standards?
Answer - Numbers must be chosen to be protective of the beneficial water use. This topic came up in Colorado. Technology-based criteria are used in variances but not in setting water quality standards.

Question - Have other states addressed mixing zones?
Answer - New Jersey looked at mixing zones; however, the current numbers in this state would not be acceptable to EPA today as protective of water uses.

Question - How are permits being implemented in other states?
Answer - EPA has a work group that is attempting to clarify permit issues related to implementing numeric nutrient criteria. Rosemary Rowe is on this group, and I will ask her to address this question at the next NWG meeting.

Question - Are any states looking at implementing numeric nutrient criteria in permits?
Answer - New Mexico is using numeric criteria in its permits. EPA Region 1 is also doing so.

Nutrient Trading Policy

Todd Teegarden and Claudia Massman discussed the August 2, 2010 draft document entitled "Montana's Policy for Nutrient Trading." This document is available on the NWG web site at the following address.

http://www.deq.mt.gov/wqinfo/NutrientWorkGroup/PDFs/MontanaDraftNutrientTradingPolicy8-2-2010.pdf

This policy statement is meant to provide general guidance regarding nutrient trading. It is currently undergoing an informal review. In addition to the NWG, DEQ has sent the draft policy document to interested groups. DEQ intends to move towards adopting a policy through a Board of Environmental Review (BER) rulemaking. DEQ is willing to pilot the trading policy prior to its formal BER action on it. Actions under the pilot would be subject to public comment and EPA review. The policy will not be enforceable prior to BER action.

Mr. Teegarden requested that comments on the draft be sent to the DEQ Director, Ms. Massman, or himself. An opportunity for comment will also be provided at the next NWG meeting.

Question - Will the policy be adopted as a DEQ or a BER rule?
Answer - BER.

Question - So the policy will be adopted through a formal rule?
Answer - Yes.

Question - Will the policy be considered as a part of the numeric nutrient rule package or a separate rule?
Answer - A separate rule.

Question - Under this policy, could trades be made to meet the numeric nutrient criteria or as an alternative to temporary nutrient criteria?
Answer - This policy would provide an alternative means to satisfying the numeric nutrient criteria.

Question - Has DEQ considering broadening the trading policy so that it would apply to more than just nutrients?
Answer - Currently, we are considering it only for nutrients. EPA supports trading for nutrients; we are not sure of the agency's position regarding other water pollutants.

Question - Would trading require a separate permit?
Answer - No, it would be included as a condition of a Montana Pollutant Discharge Elimination System (MPDES) permit.

Question - Would trading require a separate public notice and comment opportunity?
Answer - When the MPDES permit comes up for renewal, the public notice and comment would be provided. Within the department, we are discussing how to facilitate incorporating trading without completely reopening the permit.

Question - Are the DEQ permitting and TMDL groups together on this policy and its implementation?
Answer - The impetus for the policy is EPA's allowance of nutrient trading as one means to meet the numeric nutrient criteria. We recognize trading as an alternative means to implement both the criteria and a nutrient TMDL. We need to identify appropriate sideboards for how trading will work in Montana.

Question - Do you have a schedule for the trading rulemaking?
Answer - No, but we intend to move it to the BER next year.

Question - Where are you regarding trading ratios?
Answer - The draft policy purposefully did not include numbers for the trading ratios. The department's consultant recommended that the ratios should be left open for consideration of a specific permit applicant, watershed, and the department.

Question - Could you please explain the retirement ratio?
Answer - The consultant advised that we use this ratio to make sure that the water quality benefit will occur. We therefore have proposed a 10% increase in the required 1:1 ratio for non-point trades to ensure that there will be a net water quality benefit to the watershed.

Question - If one party to the trade is not an MPDES permit, can contracts be used as an enforcement mechanism?

Answer - The DEQ will only enforce MPDES permits. It will be the permittee's responsibility to verify the trade annually.

Comment - A default by a non-MPDES entity may put the MPDES permit in jeopardy. DEQ should consider a default period to allow the permittee to enforce contract provisions rather than automatically finding the permit to be in non-compliance.

Comment - How security is provided in the event of a default by a non-MPDES party is a business decision between the parties to the trade.

Comment - Government and corporate entities would likely be comfortable with surety provisions; farmers may not be.

Question - Are any states implementing a trading policy?
Answer by Tina Laidlaw - Maryland and Colorado are following EPA trading guidance.

Question - What would NWG members advise their clients about participating in a pilot of the trading policy or waiting until a rule is formally adopted by the BER?
Answer by NWG Member - Participating in the pilot would mean additional risk for permittees. I may recommend participating, however, depending on the DEQ position on reopening a MPDES permit.

Comment - Some permit holders may wish to participate in trades; however, the trading ratios and information requirements appear to be costly and time consuming.
Response - The devil will be in the details. DEQ will be reasonable in trading and information ratio requirements. DEQ has an internal working group that will consider a trading proposal. Our objective will be to keep trading viable while ensuring benefits to the watershed.

Comment - Trading should be an important tool for addressing non-point nutrient sources. The trading policy should drive voluntary actions to improve water quality by developing credits for sale. The trading ratios will be a disincentive to voluntary trading.

Question - Does DEQ have plans to seek legislation related to water quality?
Answer - The department will seek legislation to clarify our authority regarding a water reuse standard to ensure adequate treatment levels so that reused water can be available for other uses. This legislation is not related to nutrient trading.

Question - Can trading involve tributaries upstream of point sources?
Answer - Yes. Other states have also allowed downstream trading for a reasonable distance among point sources.

Comment - Conservation districts are willing to assist with nutrient trading.

Comment - Conservation districts are headed by elected supervisors. They are credible entities in counties. Conservation districts can adopt sediment control regulations and lead trading efforts.

Question - A TMDL was recently adopted for the upper Gallatin that included a nutrient load allocation. Will this set a precedent for nutrient targets?
Answer by Mark Bostrom - Prior to the East Gallatin, DEQ had not completed a nutrient TMDL for three years. However, to meet our court mandated TMDL completion schedule, we had to begin. To address nutrients we are using the process developed by Dr. Suplee that has been vetted by this group. Under the East Gallatin TMDL, Big Sky has a zero nutrient load allocation for its sewer system and golf course. Land application is being used to meet this requirement.

Question - How would a permit work with both TMDL and numeric nutrient criteria?
Answer - Because EPA reviews a TMDL, its nutrient load allocation would be enforceable via discharge permits.

Comment - The City of Helena had a nutrient load allocation to the Lake Helena TMDL. This TMDL was phased.
Response - The TMDL included a numeric nutrient load allocation for each phase. The TMDL was approved by EPA.

Question - Did the East Gallatin TMDL include phases for nutrient reduction?
Answer - Because the waste load allocation to Big Sky was zero, it did not.

Question - Is a variance appropriate for a nutrient waste load allocation?
Answer - A variance under a MPDES permit would supplant a TMDL waste load allocation. Until the numeric nutrient standard is adopted, phased implementation under a TMDL may be discussed.

Comment - The Town of Philipsburg is awaiting a nutrient allocation in the Flint Creek TMDL.

Preliminary Review of Total Organic Carbon Levels in the Yellowstone River and Implications for Numeric Nutrient Standards Based on Modeling

Kyle Flynn addressed two questions that arose at the June 17, 2010 NWG meeting relative to nutrient levels and public health using modeling of the Yellowstone River. He used a Power Point presentation available on the NWG web site at:
http://www.deq.mt.gov/wqinfo/nutrientworkgroup/AgendasMinutes/2010/Sept16/TOC_slides.pdf

Mr. Flynn sought to answer two questions:
- Would the increment of improvement in nutrient concentrations resulting from nutrient standards have an impact on public health and the attendant costs and benefits?
- Could lower Yellowstone River ever reach the 2 mg/L total organic carbon (TOC) level at which removal of disinfection by-products might not be required?

He concluded that, "Implementation of nutrient criteria are not likely to ever achieve TOC levels less than 2 milligrams per liter (mg/L) in the lower Yellowstone River."

He also stated that he may be able to present additional modeling results for the Yellowstone at the next or the subsequent NWG meeting.

Question - Would the incremental improvement from the numeric nutrient criteria be worth the cost?
Answer - I did not examine this question. If 2 mg/L is the treatment threshold, then disinfection will always be required because achieving lower TOC levels does not appear possible.

Question - Has the Yellowstone modeling told us anything that we should take into account in setting the numeric nutrient criteria?
Answer - No. The modeling results indicate that the criteria will not affect the need for disinfection treatment to reach 2 mg TOC/L on the lower Yellowstone.

NWG Work Plan

Gerald Mueller stated that after today's meeting the outstanding topics on the NWG work plan include:

- Temporary criteria for private sector affordability;
- Temporary criteria for public sector affordability in light of EPA's decision regarding the MHI cost cap;
- Options for reducing rather than treating nutrient discharges;
- Case studies of the translation of numeric nutrient criteria to permits; and
- A package of rules and implementation guidance for the numeric nutrient criteria.

Question - Would the implementation guidance be included in the rule package?
Answer - A guidance document is not enforceable and would not be included in rules.

Question - When does the EPA review happen?
Answer - The formal review happens after the BER rule adoption. However, EPA has been a participant in the NWG process so it is aware of what is being considered. By keeping EPA informed, its review is effectively occurring in parallel with the rule development.

Question - Will DEQ have a revision of the numeric nutrient criteria at the next NWG meeting?
Answer by Dr. Suplee - Work load permitting, yes.

Question - Will the numeric nutrient criteria schedule affect TMDL development?
Answer by Mark Bostrom - Significant work on nutrient TMDLs will occur in 2012.

Question - Will EPA allowed variances end in 2025?
Answer by Tina Laidlaw - EPA is attempting to clarify when variances would be appropriate. DEQ is proposing a twenty-year variance period.

Question - Are narrative nutrient standards still on the table?
Answer by Tina Laidlaw - Yes, but EPA is still pushing for adoption of numeric nutrient criteria.

Public Comment

Comment by Tina Laidlaw - At the end of October, EPA will be issuing revised guidance on use of stressor response and field data to develop numeric nutrient criteria based on the advice of its Science Advisory Board.

Next Meeting

The next scheduled NWG meeting is on November 18, 2010 in the DEQ Director's Conference Room in the Metcalf Building in Helena. An agenda will be posted on the NWG web site prior to the meeting.

Appendix 1
NWG Attendance List
June 17, 2010

Members

John Rundquist	City of Helena
Jim Jensen	Montana Environmental Information Center
Scott Murphy	Morrison-Maierly, Inc.
Jeff Tiberi	Conservation Districts
Donald Quander	Holland and Hart/Montana Petroleum Association
Dave Aune	Great West Engineering
Michael Perrodin	BNSF Railway
John Wilson	City of Whitefish
Don Allen	Western Environmental Trade Association (WETA)
Brian Sugden	Plum Creek
Debbie Shea	Montana Mining Association
John Youngberg	Montana Farm Bureau/Agriculture

Alternate Members

Doug Parker	Hydrometrics (alternate for Debbie Shea)

Non-Voting Members

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

Other Meeting Participants

Tina Laidlaw	EPA
George Mathieus	DEQ Planning, Prevention and Assistance Division
Tom Adams	City of Bozeman
Ray Armstrong	DOWL HKM
Jeff May	DEQ, Permitting Compliance Division, Water Protection Bureau
Jessie Luther	Browning, Kaleczyc, Berry, and Hoven
Mark Simonich	Helena Association of Realtors
Jessie Luther	Browning, Kaleczyc, Berry, and Hoven
Judel Buls	AE2S, Inc.
Mike Jacobson	City of Great Falls
Claudia Massman	DEQ Attorney
Mike Jacobson	City of Great Falls
Amanda McInnis	HDR
Todd Teegarden	DEQ Technical and Financial Assistance Bureau Chief
Mark Bostrom	DEQ Water Quality Planning Bureau Chief

NWG Facilitator

Gerald Mueller	Consensus Associates

Appendix 2

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
1595 Wynkoop Street
DENVER, CO 80202-1129
Phone 800-227-8917
http:thw.w.epagovlregionO8
SEP10 2010

Ref : 8EPR-EP

Richard Opper, Director
Montana Department of Environmental Quality
P.O. Box 200901
Helena, Montana 59620-0901

Ref EPA Guidance on Variances

Dear Mr. Opper:

Thank you for the opportunity to clarify the Environmental Protection Agency (EPA)'s guidance on variances to water quality standards (WQS). As background, EPA's long-standing guidance has been that variances may be granted in situations where removal of the designated use or adoption of a designated use sub-category is authorized pursuant to 40 CER Section 131.10(g). For example, State/Tribal discretion to adopt a WQS variance was discussed in a 1998 Advance Notice of Proposed Rulemaking:

> "EPA has approved State and Tribal use of variances when the individual variance is included in State or Tribal water quality standards, each variance is subject to the same public review as other changes in water quality standards, the State or Tribe demonstrates that meeting the standard is unattainable based on one or more of the grounds listed in 40 CFR 131.1 Q(g) for removing a designated use, existing uses are protected, the variance secures the highest level of water quality attainable short of achieving the standard and the State or Tribe demonstrates that advanced treatment and alternative effluent control strategies have been considered..."
> 63 Fed. Reg. 36742 (July 7, l998)

Our understanding is that Montana Department of Environmental Quality (MDEQ) is interested in authorizing adoption of variances where attaining a designated use (that is not an existing use) is not feasible because "controls more stringent than those required by Sections 301(b) and 306 of the Clean Water Act would result in substantial and widespread economic and social impacts" (40 CFR Section 131.1 0(g)(6)). Detailed EPA guidance on how to determine substantial and widespread economic and social impacts is provided in the *Interim Economic Guidance for Water Quality Standards* (1995). Our understanding is that MDEQ has relied on this EPA guidance document as a basis for developing a Montana approach.

In a letter transmitted to EPA Headquarters on February 16th, 2010, MDEQ raised some questions about variances. In particular, the letter poses questions that relate to determination of the "remedy." Our understanding is that the term "remedy" in this context means the *feasible* alternative (or combination of alternatives) that achieves the highest degree of protection for the designated use (i.e.. the controls or actions that are to be required under the variance).

The purpose of this letter is to respond to MDEQ's questions, clarify EPA's position on methods for determining the remedy pursuant to Section 131.10(g)(6), and describe one acceptable option for municipal discharges. The option described below was developed by EPA Headquarters after discussions with MDEQ and Region 8.

Our understanding is that ME)EQ plans to adopt variance procedures into their state rules based on a modified version of the procedures described in EPA's *1995 Interim Economic Guidance for Water Quality Standards.* In its February 16 letter. MDEQ specifically requested EPA feedback on: (1) establishing an upper limit on the costs for WQS-based controls that must be paid by a community (i.e., a cost cap), and (2) using the same upper cost capon a statewide basis for all communities. MDEQ further proposed setting the cost cap in Montana at 1% of median household income (MHI). This cost cap represents the total amount a community would be expected to pay to achieve WQS-based controls (i.e.. not counting costs to achieve technology-based controls). The costs that are affordable under a WQS variance would be the incremental difference between the cost cap and the existing costs already born by the community to comply with WQS-based controls.

We recognize that MDEQ thinks a statewide cap will increase the likelihood of success since the public may better understand it and MDEQ views it as the most straight-forward approach. However, this type of approach is inconsistent with the principles articulated in EPA's economic guidance and does not acknowledge that communities vary substantially in their ability to pay for pollution controls. Generally, EPA considers costs that are 2% of MHI or greater as a high burden on the community and 1-2% as an intermediate burden. Most importantly, EPA's guidance states that "in all cases, the determination of economic and social impacts must be made on a case-by-case basis."

A case-by-case determination of the remedy would require communities to evaluate a range of alternatives and associated costs. The community would identify its preferred solution to the State and EPA for review. We recognize that a cost cap would he useful for identifying alternatives that are affordable and help to identify the remedy on a case-by-case basis. However, it is not appropriate to use the same cost cap for all communities on a statewide basis; instead, the cost cap should consider both the median household income and other socio-economic factors. It is not our position that EPA would never accept a cap of 1% MHI for a specific variance; rather, we would take into account the MHI, along with other economic indicators, in determining an appropriate cost cap.

We encourage MDEQ to consider incorporating the framework described below into the States variance process. This framework would provide a case-by-case approach to identifying the cost cap based on MW and other economic indicators. The framework would help communities and design engineers to anticipate pollution control costs early in the process. This approach could assist communities as they evaluate alternatives and consider what remedy is appropriate and feasible (i.e., in situations where granting a variance would be consistent with 40 CFR Section 131.10(g)).

The proposed framework offers a mechanism for systematically evaluating the community's Municipal Preliminary Score (MPS) in combination with the Secondary Score (SS) that reflects socio-economic factors. MDEQ's process for calculating the secondary score is based on a suite of socio-economic indicators which include: bond rating, overall net debt as a percent of the full market value of taxable property, unemployment rate, median household income, property tax revenues, and property collection rate. This modified list of indicators was reviewed and supported by Region 8 and EPA Headquarters. The MPS is the total annual incremental costs as a percent of median household income. The SS is the average of a set of scores of 1,2, or 3 (weak, mid-range, strong) applied to the socio-economic indicators. Under the proposed framework, the SS is used to determine the cost cap, as a percentage of MHI. The framework would be applied as follows:

To determine whether impacts are substantial, EPA s 1995 guidance offers the following table:

Table 1. Table from EPA's 1995 Guidance

Secondary Score	Municipal Preliminary Screener		
	<1%	>l% and <2%	>2%
>2.5	Not Substantial	Not Substantial	?
>1 .5 and < 2.5	Not Substantial	?	Substantial
<1.5	?	Substantial	Substantial

A graphical depiction of this information (Figure 1) is presented below.

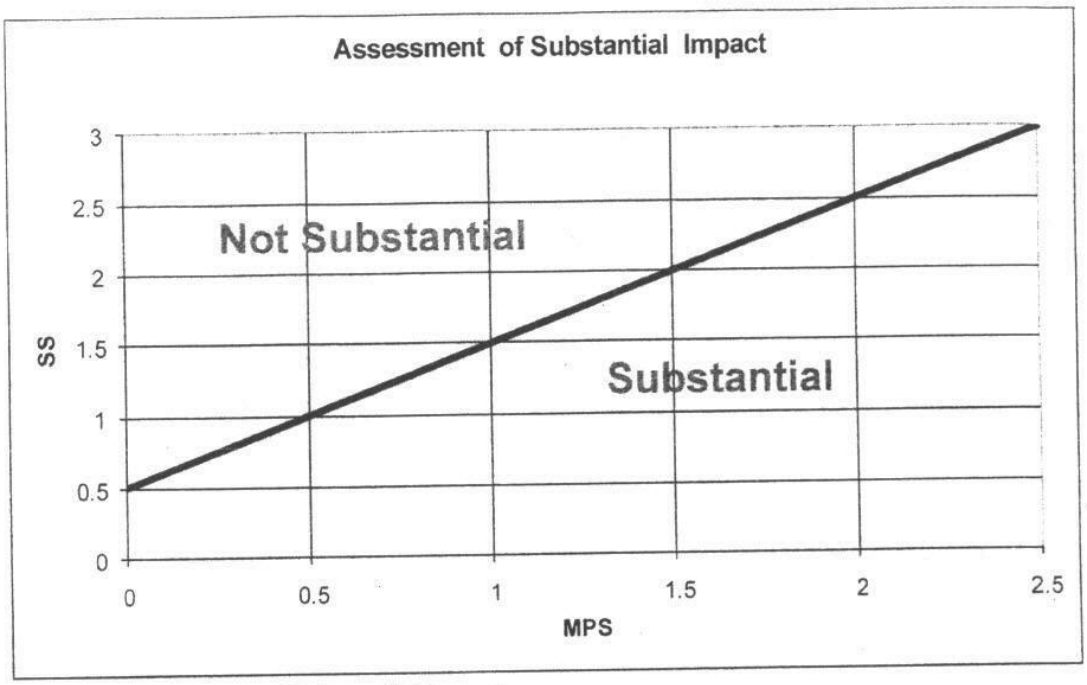


Figure 1. Assessment of Substantial Impact

To put this boundary into an equation, it would simply be SS = MPS + 0.5, and impacts are substantial when SS < MPS + 0.5. In words, one could say: "The impacts are considered substantial when the secondary score of community health is less than the municipal preliminary screener value plus half a percentage point." The (x, y) anchor points for the line are MPS = 1%, SS = 1.5] and [MPS =2%, SS = 25].

- For the (x, y) point (1%, 1.5), the proposed approach interprets the 1995 guidance as taking the position that when SS is less than 1.5, the costs impacts are substantial if the MPS is greater than 1% of MHI.

- For the (x, y) point (2%, 2.5), the proposed approach interprets the 1995 guidance as taking the position that when SS is less than 2.5, the cost impacts are substantial if the MPS is greater than 2% of MHI.

Figure 2 provides a modified graphical interpretation of the 1995 guidance using the secondary score as a sliding scale to determine the cost cap for the remedy (as a % of MHI). The cost cap figure represents the total (not incremental) costs that a community would pay for WQS-based controls.

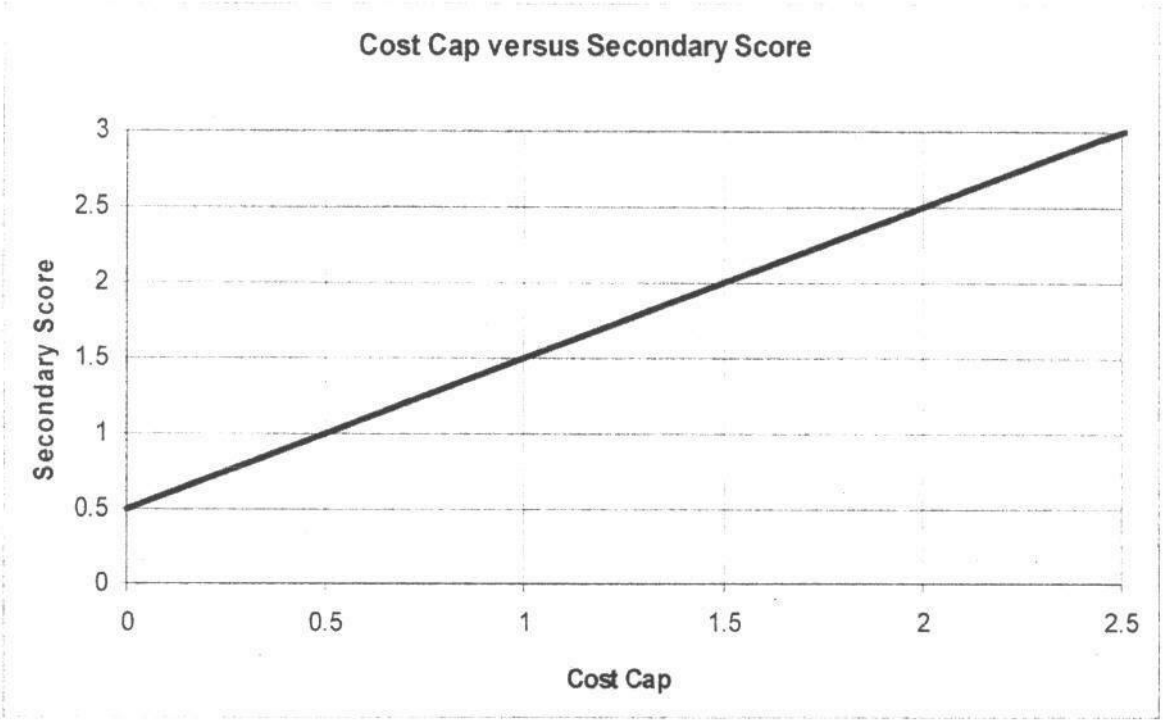


Figure 1. Graph for Deriving a Site-Specific Cost-Cap

Applying this framework would result in various case-by-case remedy cost caps (depending on the secondary score). Table 2 presents a summary of cost caps associated with several secondary score values.

Table 2. Cost Cap based on Secondary Score

Secondary Score	**Cost Cap (% of MHI)**
1.0	0.5
1.5	1.0
2.0	1.5
2.5	2.0
3	2.5

It is important to understand that prior to using Figure 1 to determine the cost cap, the community must first demonstrate that meeting Water Quality Based Effluent Limitations associated with the State's numeric nutrient criteria would result in substantial and widespread economic impacts. The following scenarios outline the application of the framework to identify the cost cap. In all of the scenarios presented below, the underlying presumption is that the

communities have demonstrated that meeting numeric nutrient criteria will result in substantial and widespread economic impacts.

- **Scenario A:** Community A's secondary score is 2.5 and has demonstrated that meeting numeric nutrient criteria would cause substantial and widespread impacts. Following EPA's proposed framework, the community would be expected to apply a cost cap of 2% of MW towards the remedy. Outcome: If current treatment costs for WQS-based controls as a percentage of MHI is 1%, the community would be expected to pay an additional 1.0% of MHI towards the remedy.
- **Scenario B:** Community B has a secondary score of 2.0 and has demonstrated that meeting numeric nutrient criteria would cause substantial and widespread impacts. Following the framework, the community would be expected to apply a cost cap of 1.5% of MHI towards the remedy. Outcome: If current treatment costs for WQS-based controls, as a percentage of MW, are 1.0%, the community would be expected to pay an additional 0.5% of MHI towards the remedy.
- **Scenario C:** Community C has a secondary score of 1.0 and has demonstrated that meeting numeric nutrient criteria would cause substantial and widespread impacts. Following the framework, the community would be expected to apply a cost cap of 0.5% of MHI towards the remedy. Outcome: If current treatment costs for WQS-based controls, as a percentage of MHI, are 1.0%, the community would not be expected to upgrade its wastewater treatment.

This framework offers a case-by-case analysis consistent with EPA guidance and would facilitate the process of determining the amount a community would pay towards pollution control costs.

In closing, we would like to commend MDEQ for all of the bard work and commitment to adopting numeric nutrient criteria. EPA Will continue to support MDEQ's efforts to adopt numeric nutrient criteria and EPA expects that it would approve this framework as part of a rulemaking package.

We look forward to working with you and your staff in your continued progress towards adopting numeric nutrient criteria and associated implementation procedures. If you have any questions or need additional clarification, please contact Tina Laidlaw (406-457-5016) or Dave Moon (303-312-6833).

Sincerely,

Carol L. Campbell
Assistant Regional Administrator
Office of Ecosystems Protection and Remediation

cc: Jim Keating, Office of Science and Technology, EPA Headquarters Mike Suplee, Water Quality Planning Bureau, MDEQ

Appendix 3

DRAFT (8-31-2010)
Questions Regarding Nutrient Control Approaches in Various States

The Colorado Water Quality Control Division (WQCD) is in the process of developing nutrient criteria for a June 2011 rulemaking hearing. Recently, a coalition of Colorado dischargers and other stakeholders (the Colorado Nutrient Coalition or CNC) hired the Hall brothers (John C. Hall and William T. Hall) and attorney Tad Foster to represent CNC in Colorado's stakeholder work group process. The Hall Brothers have submitted a technical evaluation to the WQCD identifying various issues and concerns regarding the WQCD's draft approach to nutrient criteria. In addition, WQCD was informed that CNC will be submitting an independent nutrient criteria proposal for review with WQCD and the work group. In discussions to date, the Hall Brothers and Tad Foster have mentioned approaches now being used or developed in other States, and suggested that elements of these approaches should be used in Colorado.

Accordingly, Region 8 needs to learn more about how nutrients are being addressed in several States so that we can better understand the recommendations of the CNC and report to the Colorado stakeholder work group on EPA's thinking regarding the approaches in these other States.

Links

- Tad Foster power point Slides Re: New Mexico Approach
http://projects.ch2m.com/cwqf/Workgroups/Content/nutrient_criteria/Meetings/08%202010%20August/CNC%20Comments%20on%20Nutrient%20Concept%20Paper.pdf

- July 15, 2010 CNC comments on WQCD concept paper
http://projects.ch2m.com/cwqf/Workgroups/Content/nutrient_criteria/Meetings/08%202010%20August/CNC%20COMMENTS%20on%20WQCD%20NutrientsConcept%20Paper%20July%2015.pdf

New Jersey

Existing criteria: Both numeric and narrative nutrient criteria on the books that apply to all freshwaters – Numeric criterion for lakes was adopted in 1974 and criterion for rivers was **adopted in 1981**. Narrative criteria were adopted in 1985 and revised in 2001 to add provision to establish watershed specific criteria.

Numeric:

1. Existing Nutrient Criteria:
   - **Lakes:** Phosphorus as total P shall not exceed **0.05 mg/l**, at any lake, pond or reservoir, or in a tributary at the point where it enters such bodies of water, except where watershed or site-specific criteria are developed pursuant to N.J.A.C. 7:9B-1.5(g)3.
   - **Streams:** Except as necessary to satisfy the more stringent criteria above or where watershed or site-specific criteria are developed pursuant to N.J.A.C 7:9B-1.5(g)3, phosphorus as total P shall not exceed **0.1 mg/l** in any stream, unless it can

be demonstrated that total P is not a limiting nutrient and will not otherwise render the waters unsuitable for the designated uses.

2. *Narrative:* "Except as due to natural conditions, nutrients shall not be allowed in concentrations that cause objectionable algal densities, nuisance aquatic vegetation, abnormal diurnal fluctuations in dissolved oxygen or pH, changes to the composition of aquatic ecosystems, or otherwise render the waters unsuitable for the designated uses."

NJ acknowledges that the numeric criteria may be outdated and need to be reevaluated --- New Jersey Nutrient Criteria Enhancement Plan states that "significant data and research developments have recently expanded the knowledge base about the general and site specific factors that cause or contribute to nutrient impairment in NJ's waters since these criteria were promulgated. Therefore, the Department has developed this Plan to enhance NJ's existing nutrient criteria to better address the sources and causes of nutrient impairment and its adverse impact on beneficial uses of the state's waters…"

There are no nutrient criteria on the books for coastal waters.

NJ's Ongoing Nutrient Work:

The State is planning to enhance the existing nutrient criteria for freshwaters and develop new criteria for other (estuarine, marine) waters of the State. While NJ has not committed to adopting N criteria for all waters, the State is evaluating whether there is a need for N criteria, in addition to P criteria, in freshwater and estuarine waters. Development of watershed or site-specific nutrient translators is a high priority for the state, especially to replace the numeric of 0.1 mg/l for streams.

The Department's conceptual approach is to look at relationships between causal and response variables through a weight-of-evidence approach.

The Nutrient Plan is not definitive on whether the state will adopt causal criteria, response criteria, or both --- "Nutrient criteria, which may include numeric criteria and numeric translators of narrative criteria, will be developed to address and prevent nutrient-related use impairment in NJ waters."

Existing Effluent Standard

Since 2002, WQBELs based on 0.1 mg/l. However, NJ documents that "since the SWQS include both numeric and narrative criteria, acknowledging that TP concentrations could exceed 0.1 mg/l in some waters w/o rendering the waters unsuitable for their designated uses, the Department provided each permittee an opportunity to demonstrate compliance with the nutrient criteria and policy." ---- See Technical Manual for P evaluations.

TMDL's

Lake TMDL's -- 48 lake TMDL's established using existing numeric of 0.05 mg/l or in some cases a higher value where it could be justified as a naturally occurring condition.

Passaic River TMDL – recently developed using assessment of narrative criteria using response indicators (DO, pH, chl-a).

New Mexico

Tad Foster posted several power point slides on Colorado's stakeholder work group website that discuss 303(d) listing methods used in New Mexico to identify waters impaired by nutrients as an example of the "triggers with confirmation" approach that the CNC recommends.

The term, "triggers with confirmation" refers to NM's use of a suite of indicators in a Weight of Evidence Approach to interpret the State's existing narrative standard. New Mexico considers this approach to provide "nutrient translators" for the narrative standard. The indicators currently being used for the streams assessment are: DO,TP, TN, pH, and algal biomass. If the threshold values for 3 or more of the indicators are violated, the waterbody is considered impaired. An exceedance frequency of 15% was established for DO, pH, TN, and TP. Threshold values for streams were derived based on percentiles of the entire dataset (TN, TP), numeric criteria, or reference-based values (algal biomass).

For lakes, the State is still developing the suite of indicators for assessment purposes. The proposed suite includes: TN, TP, chl-a, % blue-green algae, %DO below criterion, and secchi depth. If the threshold values for 2 or more of the indicators are violated, the lake would be considered impaired. The preliminary threshold values for lakes were derived based on percentiles of the entire dataset, literature based values, or existing numeric criteria.

Table 1. New Mexico's Proposed Threshold Values for Aquatic Life Use Support in Streams (mg/l)

	21-Southern Rockies		22- AZ/NM Plateau		23- AZ/NM Mountains		24- Chihuahuan Desert	26- Southwest Tablelands		
	CW	T-WW	CW	T-WW	CW	T-WW	T-WW	CW	T-WW	WW
TN	0.25	0.25	0.28	0.48	0.25	0.29	0.53	0.25	0.38	0.45
TP	0.02	0.02 (0.05)	0.04	0.09	0.02	0.05	0.04	0.02	0.03	0.03

Values based on the 50th% of the dataset

Table 2. New Mexico's Proposed Threshold Values for Algal Biomass (μg/cm^2)

21-Southern Rockies	22- AZ/NM Plateau	23- AZ/NM Mountains	24- Chihuahuan Desert	26- Southwest Tablelands
5	8	7	17	11

Values based on the 95th percentile of the reference-only dataset

Table 3. New Mexico's Proposed Threshold Values for Lakes

Values based on the 25th and 75th percentile of the dataset for TN and TP; 50th percentile for secchi and chl-a

Designated Use/ Lake Class	TP (mg/L)	TN (mg/L)	Secchi depth (m)	Chl-*a* (µg/L)	Blue Green Algae[1]	% DO profile below criterion
			Reservoirs			
Coldwater	**0.03 – 0.5**	**0.5 – 0.8**	**1.5**	**2.3**	**>50%**	**>50%**
Warmwater	**0.04 – 0.6**	**0.6 – 0.8**	**1.0**	**3.2**	**>50%**	**>50%**
Domestic Water Supply	**n/a**	**10.0 mg/L[2] (Nitrate as N)**	**1.0**	**10**	**20,000 per mL**	**>50%**
			Natural Lakes			
Cirque Lakes	**0.03**	**1.5**	**3.5**	**2.0**	**n/a**	**>50%**
Sinkholes	**0.034**	**2.4**	**6.0**	**n/a**	**n/a**	**>50%**

Implementation:

The State uses the threshold values as TMDL targets and to calculate the WLA for NPDES permits. EPA Region 6 writes the permits for the State of New Mexico. Based on the WLA in the TMDL, Region 6 has written several permits (i.e., Ruidoso) with very low permit limits (30-day average for TN of 1 mg/l and TP of 0.1 mg/l). The permit was issued in 2007 with a 3-year compliance period. It is not known if the facility is meeting the permit limits.

Currently, NM and Region 6 are testing a new approach for setting nutrient permit limits (Figure 1). Based on discussions with the State, EPA Region 6 will use set permit limits based on limits of technology (TP of 0.1 mg/l; TN of 3 mg/l) and allow longer compliance schedules (up to 10 years). NMED will continue to monitor and evaluate the water quality conditions in the watershed and the proposed permit limits. At that time, if the waterbody is still impaired and there is no substantial improvement observed in the water quality, the WWTP would be required to enhance the treatment of the effluent by adding more effective treatment or find other means of disposal. This phased approach will be tested in several watersheds where TMDLs were just approved in August 2010 (2 permits with WLA); the permits have not been written.

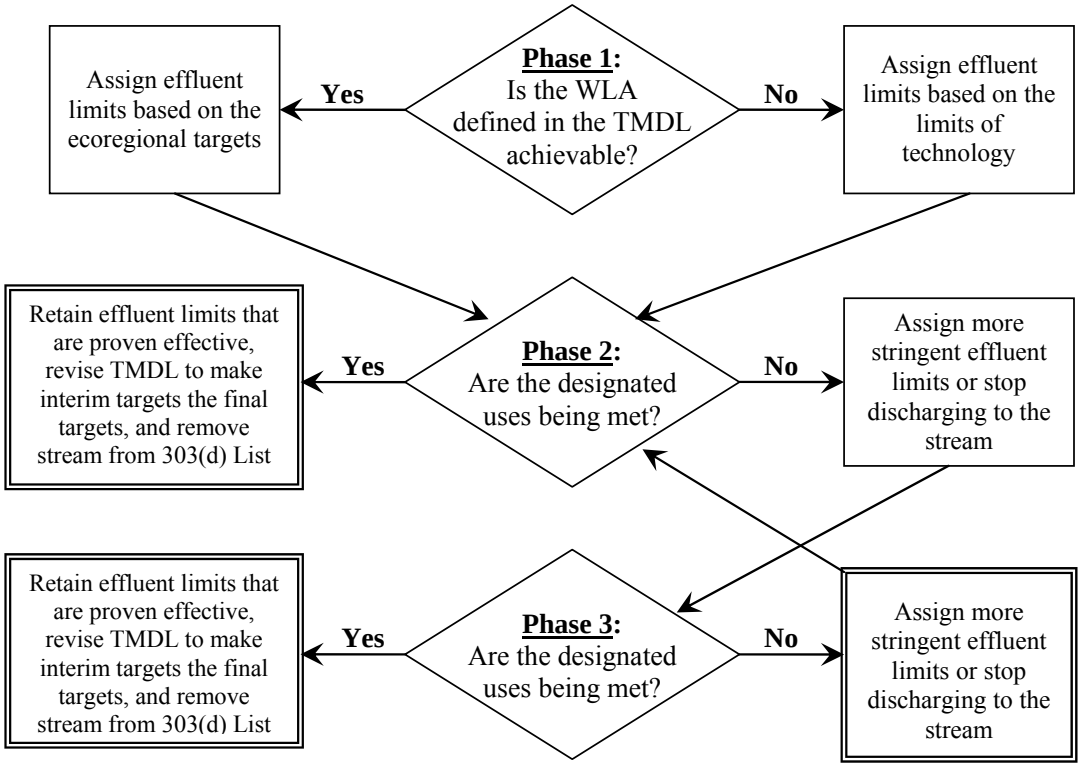


Figure 1. Decision process for assigning effluent limits in a phased TMDL

Documentation on the State's nutrient criteria work is primarily covered in a powerpoint presentation presented at the Region 6 RTAG meeting in February 2010 and outlined in the State's nutrient plan. The State has a nutrient criteria webpage. http://www.nmenv.state.nm.us/swqb/Nutrients. There is no written correspondence from Region 6 to NM describing the Region's expectations for nutrient criteria.

Ongoing Nutrient Criteria Work:

The state is conducting additional analyses to refine the threshold values based on demonstrated impacts to the beneficial uses, instead of percentile-based thresholds. For lakes, the State hopes to complete these analyses prior to finalizing a lake listing methodology. For nonwadeable rivers, the current dataset is fairly small and the threshold values are a starting point. Prior to adopting numeric nutrient criteria, the State wants to explore the use of changepoint analyses and other analytical approaches for evaluating stressor-response relationships using macroinvertebrate or periphyton indices as the response variable. Currently, the State has no timeline for adopting numeric criteria.

Wisconsin

At the August 10, 2010 Colorado stakeholder work group meeting, there was discussion about Wisconsin's total phosphorus criteria and implementation rules, and it was suggested that certain elements of the Wisconsin approach should be considered by Colorado.

Summary: In June 2010, the Wisconsin Natural Resources Board adopted rules to amend portions of the Wisconsin Administrative Code. The revisions to NR 102 and NR 217 are part of Wisconsin's comprehensive strategy to address excess nutrients, specifically phosphorus, and focus largely on point sources of phosphorus pollution. Wisconsin is addressing nonpoint sources of phosphorus pollution through a concurrent revision to Chapter NR 151 Runoff Management. The Wisconsin Legislature is reviewing the amended rules, with an anticipated review completion date in September 2010.

EPA Review: If the Legislature does not have revisions, then the amended rules NR 102 and NR 217 will likely be sent to EPA in Fall 2010. The water quality section will review NR 102 and the permits section will review NR 217. NR 151 Runoff Management is not subject to EPA review and approval.

Website for 102/217: https://health.wisconsin.gov/admrules/public/Rmo?nRmoId=4783 (under "Final Propose Rulemaking Order," starting on page 7)

- **NR 102 Revisions (Criteria)** – This chapter adopts numeric phosphorus water quality criteria for lakes, reservoirs, streams and rivers, and Great Lakes.
  - The criteria for rivers and streams are intended to protect aquatic life uses
  - The criteria for lakes are intended to protect both aquatic life and recreational uses
  - The Great Lakes criteria are based on the Great Lakes Water Quality Agreement
  - Provisions are included for site-specific criteria
  - Criteria:
    - Wadeable streams: 75 ug/l TP
    - Non-wadeable streams: 100 ug/l TP
    - Lakes are classified by lake type: Criteria range is 15-40 ug/l TP
    - Lake Michigan: 7 ug/l TP; Lake Superior: 5 ug/l TP
  - Basis for non-attainment: median summer season TP concentration cannot exceed the criterion more frequently than once every three years on average

- **NR 217 Revisions (NPDES)** – This chapter adopts provisions for developing and implementing Wisconsin Pollutant Discharge Elimination System (WPDES) permit provisions based on the phosphorus criteria.
  - Revisions include water quality-based effluent provisions applicable to: publicly and privately owned wastewater discharges; concentrated animal feeding operations; and municipal storm water discharges (to a limited extent).
  - The rule contains procedures for:
    - determining when a point source has "reasonable potential" to cause or contribute to exceeding water quality standards;
    - calculating water quality based effluent limits;
    - use of total maximum daily load waste load allocations in lieu of, or in addition to, water quality based effluent limits;

- compliance schedules;
- a watershed adaptive management option designed to achieve water quality standards in the most economically efficient manner, and as soon as possible, taking into consideration the contributions of phosphorus from point and nonpoint sources in a watershed, and

- Averaging period: Effluent limits expressed as a monthly average in permits, except for concentrations of less than or equal to 0.3 mg/l TP, which may be expressed as annual averages. If the limit is expressed as an annual average, a monthly average limit equal to 3 times the annual average limit shall also be included in the permit.
- Includes an "Adaptive Management Option" to achieve the criteria economically and as soon as possible, taking into consideration point and nonpoint sources.
  - In the first permit term, limits shall be no higher than 0.6 mg/l TP as a six-month average and no higher than 1.0 mg/l TP as a monthly average.
  - In the second permit term, limits shall be no higher than 0.5 mg/l TP as a six-month average and no higher than 1.0 mg/l TP as a monthly average.
  - After the second permit term, the limit must meet the phosphorus WQBEL. The department may allow a compliance schedule not to exceed five years.

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NR 151 Revisions (Non-point) – Wisconsin's nonpoint source rules at NR 151 are similar to categorical standards for point sources - they specify certain practices and performance standards that are expected to reduce the impacts of nonpoint source discharges on surface waters. NR 151 became effective in 2002 and establishes runoff pollution performance standards for non-agricultural practices, including transportation facilities, and performance standards and prohibitions for agricultural facilities and practices. The runoff performance standards are intended to be the minimum standards necessary to achieve water quality standards. In some areas of the State, where the performance standards may not achieve the desired water quality, NR 151 includes a process to establish by rule, more site-specific targeted performance standards. The proposed revisions to NR 151 add:

- New requirements for tillage setback;
- Phosphorus index performance standard for croplands, pastures and winter grazing areas;
- Total maximum daily load performance standards;
- Process wastewater standards; and
- Modifications to existing performance standards and prohibitions.
- Revisions to non-agricultural provisions are also proposed, for example:
  - disallowing in-line ponds in perennial streams for storm water treatment;
  - strengthening the post-construction performance standards for total suspended solids in runoff, peak flow controls and infiltration, and
  - performance standards for construction sites less than one acre.