

NORTH DAKOTA'S

Nutrient Reduction Strategy

Point Source Workgroup Meeting Summary

November 20, 2014 • Bismarck, ND • 10:00 a.m. – 3:00 p.m.

Background

This meeting was scheduled as a follow up to the October 14, 2014 Point Source Workgroup meeting at the Holiday Inn, Fargo, ND. The following is a list of those in attendance.

List of Attendees:

Name	Affiliation
Al Basile (phone)	USEPA Region 8
Randy Binegar	Tesoro Refinery/ND Water Pollution Control Board
Roger Clay	SRF Consulting
Ken Demmons	HDR Inc.
Tracy Ekola	SHE, Inc.
Mike Ell	North Dakota Department of Health, Division of Water Quality
Ann Fritz	North Dakota Department of Health
Dallas Grossman	North Dakota Department of Health
Marty Haroldson	North Dakota Department of Health, Division of Water Quality
Trace Hanson	Wild Rice SCD
Jim Hausauer	City of Fargo
Seth Lynne	Apex Engineering
Karla Olson	Apex Engineering
DelRon Peters	HDR Inc.
Karl Rockeman	North Dakota Department of Health, Division of Water Quality
Eric Sikora	ND State Water Commission
Don Tucker	City of Fargo
Don Wald	City of Wahpeton
Sarah Waldron	North Dakota Department of Health, Division of Water Quality
Rick Warhurst (phone)	Ducks Unlimited
Peter Wax	North Dakota Department of Health

Karl Rockeman with the North Dakota Department of Health opened the meeting with introductions. Everyone went around the room and introduced themselves as well as their affiliation. Karl then

introduced Jodi Bruns with NDSU Extension as the facilitator of the meeting. Karl proceeded to remind us that the goal of the meeting was to focus on the component of nutrient reduction strategy that addresses point sources and reminded us that we can look beyond just numeric criteria. Jodi introduced herself and made sure that all of the attendees had a copy of the discussion questions that Mike Ell had sent out via email prior to the meeting (attached). Jodi read the first question:

“Short of actual permit limits which would be based on either technology based effluent limits or on water quality based effluent limits which are tied to nutrient criteria, in the interim, how can we effect nutrient reductions and/or their effects from point sources?”

Don Wald with the City of Wahpeton started the discussion around the idea of voluntary monitoring. Don said that Wahpeton has voluntarily collected a Total Nitrogen (TN) and Total Phosphorus (TP) sample from their most recent discharge. The results are unknown because the samples were taken so recently. The voluntary monitoring mentioned by Wahpeton brought about several questions. First, is effluent monitoring something that the Department is planning on putting into permits? The Department responded that in larger cities it has started putting in additional monitoring requirements in the permits as they come up for renewal. They clarified that it has mostly been in individual permits. Second, what is the cutoff size for monitoring and for individual permits? The Department explained that any municipality with a population over 5,000 is on an individual permit. The Department then floated the idea of having some of the larger-small municipalities, such as Washburn, do additional monitoring.

This shifted the discussion from who would do additional monitoring to what type of additional monitoring would be required. This led to the question of what water quality data was needed. How does the USGS monitoring work? Was upstream monitoring needed? Downstream monitoring? Influent as well as effluent?

The discussion then shifted with a request for a better description for what water quality data was needed and the idea of defining a nutrient budget. It was determined that in order to develop a budget it would need to include a percentage for non-point sources as well as point sources. There was discussion on how to balance the point sources with the non-point sources, on how to develop equity between the two sources. It was pointed out that based off of the USGS SPARROW model presented at the October 14, 2014 meeting, which includes an allocation of the nutrient load from different sources, including point sources and non-point sources, the majority of the nutrient load comes from agricultural. However, this is not a reason to not do anything. Nutrients are important on small scales as well as large scales, and the local impacts that nutrients can have lead to a cumulating effect. The example used to demonstrate this was looking at a large watershed in the form of the Gulf of Mexico and small watersheds such as Lake Sakakawea. An update on the non-point source group was requested and Mike Ell, with the Department of Health informed the group that the non-point source workgroup is developing a “Conservation System Handbook” for North Dakota. The purpose of the handbook is to provide a set of conservation practices or “best management practices” (BMPs) that when implemented by farmers and ranchers, will result in a reduction in the loss of nutrients from the land. Mike made the point that when we are talking about a reduction in nutrients from agricultural land, we are not necessarily talking about a reduction in the amount of N and/or P applied to crops, but rather are talking about keeping nutrients on the field where they are available for the crop.

The discussion then turned to the nutrients themselves. It was determined that phosphorus is easier to manage than nitrogen due to the fact that you can manage it as a solid. The seasonal variation of nutrients was discussed because nutrients only have detrimental effects on rivers and streams during the growing season. It was suggested that the Department look at seasonal differences, especially if they end up developing numeric limits. This circled the discussion back to nutrient budgets and maybe the way to go would be to develop a nutrient budget with annual limits. This way, if a facility has a high month, they have the time to average it out through the other eleven months of the year. Al Basel with Region 8 EPA commented that a year is too long of an averaging period and that the EPA wasn't comfortable with that. Monthly budgets were then discussed especially when it comes to stream discharges. This circled the discussion back to monitoring, this time in the direction of biological monitoring. What type of biological monitoring would be needed? How would you monitor that? Would it be grab samples or something more intense? The group decided to table the idea of biological monitoring. Someone suggested that since there would not be an immediate biological response it may be hard to measure. Another workgroup member made the comment that biological monitoring would be one way to measure the long term effect of nutrients in a river or stream and that you may be able to measure the effect through upstream and downstream monitoring.

The Department was asked how they would go about putting a limit in a permit if they had the monitoring information. Dallas Grossman with the Department explained how permit writers use a reasonable potential analysis to determine a limit. This type of analysis is done best when there is more available data. This type of analysis would also lead to a water quality based limit as opposed to a technology based limit. A technology based limit was suggested as a starting place because it is seen as more economically practical.

The workgroup discussion then evolved around the idea of a narrative nutrient standard and how it would be adopted in the state's water quality standards and how it would be implemented by the Department. Karl suggested that an example of a narrative standard would be a statement such as "you cannot impair a drinking water source". The workgroup then went on to discuss prioritizing water bodies based on their use such as a drinking water source, recreational water, etc. Again, this type of standard would be something that would be put into the state water quality standards. The state's water quality standards are reviewed every three years with the next cycle coming up in 2017. If the Department were to pursue a narrative nutrient standard, it is likely that it would be done as part of the next 2017 review and update. It was the consensus opinion of those in attendance that it would be good to have a narrative nutrient standard before adopting numeric nutrient limits. That way we are able to target areas where nutrient reduction is really needed. This narrowed the discussion to the idea of basin or watershed prioritization. Through a watershed prioritization analysis (using the recovery potential screening tool), basins or watersheds could be prioritized based on the presence and/or number of point source dischargers located within the basin or watershed. The higher priority "point source" basins or watersheds would then be targeted for additional monitoring (both stream and effluent) in order to better characterize the load allocation. Additional stream biological monitoring could also be conducted upstream and downstream of the point sources to assess potential effects of nutrient to the river or stream's aquatic life uses.

The Department was asked if they were willing to look into a compliance schedule, if and when permit limits are implemented. Karl Rockeman with the Department said developing a compliance schedule is

like “kicking the can down the road” and that this is something that we could look into but should really try to solve as much as possible now. The Department was also asked how they would develop permit limits for nutrients. Karl explained the typical method the permit writers’ use is found in the EPA’s Technical Support Document (TSD). The problem with that is that the TSD is that it is generally used for toxics and the Department isn’t comfortable using it when it comes to nutrients. The effect of toxics is different than nutrients; the goal has shifted. With toxics the goal is the end of pipe number. For nutrients, you go from the biological condition you want and follow that back to the end of pipe. Mike Ell then explained that they would probably try to use a TMDL type approach. He explained that the timeline for something like that would be two to three years for a complicated TMDL including a stressor/response analysis. This type of approach would also help balance the responsibility between point sources and non-point sources.

Again this led the discussion back to monitoring and the idea of prioritization. It was concluded that prioritization should trigger more monitoring and that the Department could implement enhanced monitoring requirements in the permits for new facilities, during the permit renewal process or for upgrades to existing facilities. Another suggestion during the application process for upgrades to existing facilities was the idea of having a design standard that would specify a reduction in nutrient concentrations or loading from existing levels. This led to a comparison between design standards and technology based effluent limits. It was suggested to perform an optimization study to determine the design capacity for existing systems. This then brought up the issue of education and outreach and the fact that it is easier to not have the nutrients in the influent then to try and remove them. Pretreatment was discussed especially when looking at phosphorus because phosphorus is an additive during the drinking water treatment process.

Jodi then focused the discussion back to the original questions and asked, “Assuming we would use something like a TMDL to develop a load allocation and wasteload allocation for downstream lakes or reservoirs, what would be the threshold, in terms of the percent, that we would limit the point sources?” In other words, is there some percentage of the overall nutrient load allocation where the Department would not be overly concerned with point source nutrient reductions. Is that threshold 5, 10, 20, 25 percent?

The group was very hesitant to throw out a specific percentage. This led Jodi to ask what the fears were to setting a percentage and to point source nutrient reduction in itself. The group answered that cost and equity were the largest obstacles. Allocating finances to reduce nutrients at the current moment was hard because there was nothing specific that was making facilities do that. The second fear that stakeholders had was the lack of proper personnel to operate the wastewater treatment system. A lot of systems in North Dakota are fairly simple to operate, but becomes significantly more complicated when you start to target nutrient reduction. It will be hard to find qualified operators or to just train the current ones.

Karl Rockeman then stepped up and recapped the main points that had been covered throughout the discussion in the direction of interim steps.

- The first point was optimization for both mechanical systems and lagoon systems. For mechanical systems this includes targeting a specific percent reduction. For lagoon systems it includes the timing of discharges and sufficient holding capacity.

- The second point was a focus on source control. This would have a focus on educational outreach and pretreatment.
- The third point was developing a narrative standard. This would include prioritizing watersheds, additional monitoring, and an assessment of the impacts that nutrients may be having to a lake or stream's beneficial uses.
- The fourth point was a focus on monitoring, both effluent and instream, and developing a targeted approach to monitoring.
- The fifth point was how to implement this information into permits. This brought up the discussion of trading. It was determined that trading would be a nice option but that it could be very complex to implement, especially when it is between point sources and non-point sources.
- The final point was the concept of regionalization, where you have a neighboring large plant responsible for reducing nutrients with possible financial support from the smaller facilities.

The main take away point from the discussion was that a narrative standard was a good starting point and that we, as stakeholders, have an opportunity to develop the narrative nutrient standard.

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- Short of actual permit limits which would be based on either technology based effluent limits or on water quality based effluent limits which are tied to nutrient criteria, in the interim, how can we effect nutrients reductions and/or their effects from point sources?
 - What are some ideas on different ways to operate/optimize point-sources to reduce nutrients (TP and TN)?
- Effluent monitoring requirements are being added to major dischargers, is additional monitoring needed related to point sources (e.g., minors, upstream/downstream, biological)?
- Once we have numeric nutrient criteria that would provide a regulatory basis for permits limits, how should the department implement nutrient criteria into permits? We discussed different ways to write the permits to include nutrients. Which of these is the direction the stakeholders want to look more at?
 - Related to the above question, we may want address and discuss the difference between permit limits for the protection of a receiving stream and one for a downstream lake or reservoir. Assuming we would use something like a TMDL to develop a load allocation and wasteload allocation for a downstream lakes or reservoir, what would be the threshold, in terms of % load, that we would limit the point sources?
 - In the interim, as the Department develops and adopts either statewide or site specific numeric nutrient criteria, should the Department develop narrative criteria. If so, how would you recommend the Department implement a narrative standard related to nutrients? And permit limits?