

Nutrient Monitoring Council (NMC) 8th Meeting

March 14, 2017

Illinois EPA, 1021 North Grand Avenue East, Springfield – Mississippi River Conference Room

Meeting Minutes

NMC presentation and discussion at the February 7 Policy Working Group meeting pertaining to Monitoring for Local Water Quality Outcomes - Gregg Good and Ann Holtrop

Gregg gave a summary of the NMC update given at the February 7 Policy Working Group meeting. Specifically, the Local Water Quality Outcome challenge makes it difficult and asked for direction. Take home message: loads leaving the state is the #1 priority. No need to develop large plans at this time. Coordinate supplemental monitoring at existing watershed implementation projects.

Discussion: What is NMC's role? Is it up to local entities to decide how to proceed? How do we guide other people in monitoring? (Going back to what the variables tell you.) What kind of template of a water management plan? The interpretation important to give flexibility to monitoring group. How consistent does the data need to be across the state and temporally? Set up a standard and approach now. How do we answer the question: are the BMPs working? Some possible example projects: Mackinaw, Praveen's project, CREP, Corn Growers. MN assessment project: consistency not so important and need project large enough to see a change. Objective: Get ready have enough data to leverage grants. Now could do baseline assessment at a subset of sites.

Local Watershed Implementation Projects and Outcome Monitoring - Trevor Sample, Illinois EPA

L. Springfield monitoring: captured 44% of storms. Used SWAT model to supplement info. Estimated cumulative nitrate yield (lbs/ac) summary graphs all saw a jump. SWAT helped explain it. Take home point: Highest concentration doesn't always yield highest load.

Vermilion Headwaters MRBI, Indian Creek MRBI, and Lake Springfield Projects -Daniel Perkins, Waterborne Environmental

In the Vermilion Headwaters, they looked at justifying why there would be differences in subwatersheds in monitoring programming. (as a way to think about monitoring site selections). Used SWAT fill in areas to guide where to monitor. Evaluated 5 BMPs and monitoring recommendations and found reduction potentials. Used SWAT to determine best monitoring sites by running various BMP scenarios. Recommended 2 sub-watersheds.

They did additional cover crop modeling for Indian Creek. Goal: look at 4R impact on load. Benchmarked with comparison to baseline. Did 25-year simulation. Chose four most likely scenarios. Spring and Spring side dress 10% improvement 10 out of 25 years (40% of the time).

Cover Crops: 4 scenarios of varying degrees of adoptions and area. If have 100% adoption, could have 30% N reduction.

Upper Macoupin Watershed MRBI, RCPP Project - Trevor Sample, Illinois EPA

Objective was to show over 5 year period if there was a difference. Have to look storm by storm. Indian Creel had high level of NRCS program enrollment. AFT applied technique to Upper Macoupin Cr Watershed Partnership focusing on phosphorus. It's a high yield loss watershed. Illinois EPA partnered with Blackburn College for grab samples. Trevor developed QUAP. In the future, they'll have autosampling sites and continuous streamflow.

Agricultural Implementation Tables – NLRS Biennial Reporting of Progress – Trevor Sample, Illinois EPA, presented this information. Reporting approach: we know what we (state and fed) fund, so capture this.

Havana Lowlands Groundwater Study - Section 106 Monitoring Grant Update – Rick Cobb
Averaging 19 mg/L nitrate. Monitoring just went in last week. Well location is down gradient of center pivot. This a sand dune area that has fertigation and side dress. Will monitor for a year with 15 min intervals.

8-station USGS Super Gage Network and Annual Report Development Update – Kelly Warner
Most stations have a full year of data. Florence has data since 2012. Have an annual report. Loading will be included – daily, yearly. Will do a 5-year summary that contains analysis. Working out some difficulties with phosphate. For next report, USGS will have 2 years of data but won't be able to say trend until 5 years.

MWRDGC Super Gage #9 at Joliet, and IEPA Monitoring in the Marseilles, Starved Rock and Peoria Pools – Settlement Agreement Monitoring – Gregg Good

Monitoring will start in 2018. IEPA will also monitor at three sites in the area. Ninth site will help define point source contribution into the Illinois River.

NLRS Fall Workshop Planning - Specific workshop planning for more NMC member interaction with the NLRS Policy Working Group and other Working Groups (e.g., NSAC, AWQPF, Urban SW, Performance Benchmark)

Plan to meet with AWQPF and NSAC.

Cross pollination topics:

AWQPF: "how do we aggregate monitoring for the state?" – is that something that they should gather ahead of time?

NSAC: "what are the criteria they are looking at? Does it overlap?"

Vermilion River Watershed Nutrient Monitoring Plan Template Development

The Goal – To try and show nutrient reduction and water quality progress in priority watersheds through monitoring.

Google Docs Exercise – Progress to Date? Discontinue? Presently halted

2017 Illinois EPA Large River Microcystin Monitoring Effort – Gregg Good

Illinois EPA has prepared reaction document if Mississippi River has an extensive algal bloom. They will be doing microcystin sampling this summer.

In attendance: Gregg Good, Illinois EPA; Kelly Warner, USGS; Trevor Sample, Illinois EPA; Ann Holtrop, Illinois DNR; Rick Cobb, Illinois EPA; Andy Casper, Illinois Natural History Survey; Chuck Theiling, US Army Corps of Engineers; Anna Marshall, University of Illinois; Cindy Skrukud, Sierra Club; Jong Lee, UIUC, NCS; Paul Davidson, University of Illinois; Laura Keefer, Illinois State Water Survey; Brian Miller, Illinois Water Resources Center; Ben Weigleitner, Illinois Water Resources Center; Katie Hollenbeck, Illinois Water Resources Center; Eliana Brown, Illinois Water Resources Center; Justin Vick, MWRDGC; Dan Perkins, Waterborne Environmental Inc.; Abel Haile, Illinois EPA; Teri Holland, Illinois EPA

Gregg Good: For the folks who don't know, here's a list of all who are on the Nutrient Monitoring Council. Anna Marshall is here today. She is a sociologist at UIUC. We also have Dan Perkins with us today from Waterborne Environmental.

Anna Marshall: I work with ag engineers on a project figuring out how and why stakeholders adopt conservation strategies. I am a sociologist of law, policy making, etc.

Gregg Good: Here is our charge: identifying what's leaving the state, documenting, a prioritized list, and funding. But there's no funding anywhere. Trevor, Paul, Ann and I were all at the Policy Working Group meeting. Here's what I talked about, the monitoring network. Where do we go with monitoring in regards to the charge? We shared with them this grand idea to collect data and tell stories. In the hope to reduce nutrients and affect water quality, we developed this template. We were going to start with Vermilion and then at the last meeting, we were going to hold our horses. Who's ultimately going to implement this? We told them we were "floundering." Then we talked about challenges. Where's the check to do all of this work and how do we sample habitat, fish, and vertebrates? It takes time to show success, we thought maybe the Nutrient Monitoring Council would lead, and then shared our feeling. I think there's going to be a conference or workshop. These are the specific questions we proposed to Policy Working Group. Do we really need to go about process of developing watershed plan or smaller watershed? Do we have to do these big studies? If we measure chlorophyll a, is that enough to tell a response story at all? The comments are: "are we needing these big fat documents, worry about loads for now, if we knew what we wanted to ask, etc." So this was the take home message from the Policy Working Group. The #1 job is monitoring nutrient loads. There is no need to develop the big plans. We need to keep it simple stupid (KISS), and coordinate supplemental monitoring activity.

Cindy Skrukruud: I'd like to better understand this last bullet. The Nutrient Monitoring Council would potentially offer assistance to watershed groups?

Gregg Good: I think as a monitoring body, we talked with Trevor and Amy, and we were asking where that charge came from to do water quality outcomes. We should look at both loads. What does it mean by local water monitoring outcomes? If there are efforts out there already, we talked to one watershed group, can they come to Nutrient Monitoring Council and can we find resources to do that? Trevor?

Trevor Sample: The Policy Working Group is an implementation group and we are a monitoring group. If they want existing data or if they need gages, we can send them to Kelly.

Cindy Skrukruud: We are coordinating with the agency on a 5-year intensive basin sampling, so we can see if we can add it on.

Trevor Sample: Like adding on grab samples or cost-sharing a gage.

Cindy Skrukruud: There are more and more groups in wastewater treatment communities. There are more watershed groups that are being self-organized. Hearing from those groups about strategies would be good.

Ann Holtrop: I feel like we are going back to where we started. It is a split between biota and water quality chemistry. We need to find what is relevant. I like where this is going. It is something we started to have as a resource. Here's what they will tell you. We started down that path and came up with parameters.

Laura Keefer: We came up with different parameters more and more and didn't flip it on the head.

Ann Holtrop: Do we then do anything with data? Is that our role? Do we coordinate and people use it how they want? And then will it be the local entities?

Andy Casper: I was looking at the 2nd bullet point; we need methods or need to know how to coordinate data with other data. I think that's where we started out.

Ann Holtrop: I didn't get the sense anyone wanted a watershed monitoring plan. Part of it is who's going to do it. We want a template so we do things the same way. How could we guide other people in doing it?

Laura Keefer: Maybe almost like a template or a standard?

Ann Holtrop: At some point we had this in our head. We had a Google Doc where we were going to put in data so groups could see what's available from other entities in the state. That way we would know what's already out there and what still needs to be collected.

Laura Keefer: We chose Vermilion as a guinea pig to see what kind of template could be developed based on the data. So the template was used so we can formulate data.

Andy Casper: Ann made two points: 1. Giving flexibility to groups as they may not know what story to tell and 2. What useful data to collect and making it available. That will make it difficult for any individual monitoring plan.

Laura Keefer: For this monitoring group, does all of the data to be equivalent across watersheds?

Ann Holtrop: Looking forward to the day when someone will address local water quality changes, maybe we don't care how consistent we are. Maybe what you start with is what you end with. Maybe we don't need to be that consistent.

Laura Keefer: Fifteen years later, you should expect to collect at the same frequencies.

Ann Holtrop: The before and after has to be the same. The before and after needs to be at a particular place. We have to have that level of standardization.

Laura Keefer: Over the decades, to me, this transcends initiatives. They decided to set up a standard and a rate.

Brian Miller: It seems what we will be on the hook for are all of the BMPs put on the landscape working. From a Policy Working Group perspective, that's the question they will want to answer.

Laura Keefer: That goes back to when we gave locations to Katie. Do we want to keep going with that?

Gregg Good: At some point, when I have to write up a biennial report, I'd like to say, "here are some examples." For water quality outcomes, we have to have how the Illinois Nutrient Loss Reduction Strategy helped get some water quality outcome changes.

Brian Miller: One way to think about it is long-term or short-term. One thing that comes to mind was Mackinaw. We had Praveen talk to this group. There might be one or two more in the state. Out there you have the Corn Growers. So the question is: what has been done, what will we keep doing, and what's missing?

Chuck Theiling: Minnesota resources did a whole watershed assessment one year and then 20 years later. Methods change and have to be flexible. Another thing is if you don't have enough concentrated BMPs in an area, then you won't see a signal.

Gregg Good: There is not this big pot of money to implement ag methods on any level. There are lots of point source controls in the state. You get a limited amount of money to do limited things and nothing happens in the water.

Chuck Theiling: And then people get discouraged.

Andy Casper: There is potential in the future, maybe in 10-20 years, for block grants where we can take this little thing that we can do, and take it and go big.

Ann Holtrop: One thought is if we do see the day down the road to revisit a subset of sites, to an effect of 15-20 years later, if we need to fill some in, we can leverage some staff to go collect data. If we don't

anticipate the story down the road, we might not have the best data to tell a story. Maybe that is the deliverable we can do. We can collect data at a subset of sites.

Gregg Good: Okay, so we need to move on. We are going to Dan's presentation.

Dan Perkins: I'm excited to be here and appreciate the invitation. Carolyn Wade, Kris Reynolds, and Jennifer Filipiak would have liked to be here. We work a lot in fields and streams and monitoring from Nebraska to Louisiana. This is about work we've done with Corn Growers and American Farmland Trust. I'm from Nevada. I moved to the Midwest, went to Purdue, went to Florida, and studied nutrients and did a postdoc. I worked for an agricultural chemical company in North Carolina and had a lot of interaction with the EPA over a few years. My background is hydrology. Partners and sponsors are transparent of what we are doing. It has been largely difficult to present this information. We are active but are on the fringe of the mainstream efforts. First, we will talk about Springfield, then Vermilion. Obviously there are supergages in Lake Springfield. Leading up to that, there is a flow dynamic and grab samples. We helped with that effort to coordinate. It was a spatially set up. The goal was to try to determine yields since we didn't have supergages. And we wanted to see the changes in season. There was a lot of effort of concentration effort. What is concentration and load and why is it different? Here are the selected sites in Lake Springfield for sampling. You can also see associated drainage areas. This is where the group started. What do we do with these trends? You can see the mental ranking. Here is the sampling that was done. This was the effort to try to characterize concentration only. Seasonally it was broken up. To look at this, the grab samples, you didn't want to look at just the flow or non-flow conditions. We found that about 43%-44% of flow events were captured. Discrete yields mean the point in time yield. These are just the grab samples. When you estimate load per day, you have to somehow add them up. We only captured 44% of rainfall events. This is what a rainfall grab samples look like. Green are low and the red are the highest. At this point, there is a green bar through the middle. Here is the snapshot view of what loads look like on a per sample basis. You can do better if you have more samples. Without having continuous data like the supergauge, to address that, we supplemented the data with model data. The SWAT model was used to provide daily flow estimates. Simplistically, we draw a line. It captures soil, weather, etc. We calibrated the SWAT model using the data to get a better estimate. SWAT is simulated by the blue line. No model has to be perfect; it only has to be useful. Using that SWAT model to fill in the gaps, here are the cumulative loads per site. If you're looking at this in cumulative terms, SWAT helped us determine how it impacted different types. For the long term load number, here are the graphs on top of each other. Here is the highest load. This is cumulative yield by season by site. If you look at straight lbs, not lbs per acre, how did that rank against NLRs document? There is a difference in lb/acre/per year. We had a different scale of measurement, finer tuned, etc. Lake Springfield is smaller and I'm not sure that those most recent of years (2015-2016) were in the document. When the USGS continuous data is available, we can do a lot more instead of these grab samples. That's all on that.

Gregg Good: Questions?

Kelly Warner: For the regression, was it relatively the same?

Dan Perkins: From 0.5 - 0.7.

Kelly Warner: I was wondering if the lower nutrient basin is harder to predict than the high nutrient basins?

Dan Perkins: You should probably use APEX for the smaller ones.

Rick Cobb: Lake Springfield doesn't have a ton of BMPs implemented, but they do have grass buffer strips. It is interesting that those grass buffer strips seems to be effective for nutrient loss.

Dan Perkins: That's a good observation for nutrient loss, especially nitrate.

Trevor Sample: Filter strips aren't doing any good because of the tiles.

Dan Perkins: Macoupin Creek had a paper that didn't have much difference with filter strips and tile.

Laura Keefer: I'll send you some data. We sampled in Lake Springfield in late 1980s. Just for comparison for Lake Decatur, there is 24lbs per liter of nitrate.

Dan Perkins: What we are doing and where we are doing it? We are shifting. To my knowledge, they haven't put in monitoring stations in Vermilion headwaters watershed. Most are familiar with Pontiac. We need to think of it as monitoring site selection instead of a load. We used the Pontiac gaging station to do the heavy lifting. We did a five year dataset and asked SWAT to calibrate to the dots. The line is what SWAT thinks is happening. The red area was highest load potential and green is low. Not that they are bad, just that they are different, to help direct where to monitor. We had enough information from a watershed response. Shifting away from fall completely, here are some spring data. If you ever got to this point one day, can you expect to see a change? How many years could you expect to see and improvement? We looked at a 5% yield reduction goal. How many years until a 5% reduction happens? For purposes of looking at differences in BMPs, you see sub-watershed numbers, if you have a 5% reduction goal, that's 100% of the time, you can achieve a 5% reduction if you do this massive reduction in rate. As you go higher, there is a change in percentage and change in success percent.

Kelly Warner: What's MRTN?

Paul Davidson: It's a university term, Maximum Return To Nitrogen,

Trevor Sample: The question is how many lbs of nitrogen to put on to break even? It's a tool from Iowa State University. Lake Springfield has its own MRTN number now.

Dan Perkins: This shows if you are going to shift away from fall to spring only. This one is cover crops. You see that this is pretty effective. The purpose was to determine where the best monitoring sites where using BMPs.

Laura Keefer: This might get a little more discrimination.

Paul Davidson: Did you ever consider multiple practices?

Dan Perkins: No, we haven't done that. We did subsequent modeling to look at combinations of things. Which one would be the best option? We did recommend two sub-watersheds. We used the modeling and expected frequency of return. This is an estimate of site selection. Assuming that your starting point is far out there, here is a chart of the expected BMP frequency of reaching the 10% nitrate loss reduction.

Trevor Sample: What about modeling surface runoff?

Dan Perkins: It is almost entirely tile drained. The model does account for it. The SWAT model actually grows a cover crop, accounts for water uptake, etc. There is room for improvement, sure, with large differences of success of crop from year to year.

Paul Davidson: What about planting data? Time of year?

Dan Perkins: We had to pick a date for it every year. There is a lot of opportunity to look at the model, but we're not really harnessing it. I just need some data.

Gregg Good: Okay we have 15 more minutes for Dan.

Dan Perkins: Okay, Lake Springfield and Indian Creek, this is a SWAT modeling presentation. So let's do Indian Creek. It's a smaller watershed. It's an intensively monitored watershed, though. We had to benchmark that. So this is what we came up with. We assumed 50% was in fall and 50% in spring. We assumed certain practices, if we are going to do any given year. It is an interesting link from load to practices to economics. There were a list of 10 practices and we chose 4 practices. We saw a negligible increase just by changing the rate along. The yield wasn't a ton better either. We ranked 10 scenarios, and these 10 scenarios rate the same way for Springfield and Indian Creek. Timing was a pretty big driver for both the watersheds. If the number is red, you do not have an improvement, you have a deficit. They are doing a pretty good job in Indian Creek already.

Brian Miller: Can you explain the 10% to 20%?

Dan Perkins: Each one of those represents an improvement and/or a loss. We are essentially setting an arbitrary number. Spring and spring side dress has a 10% improvement on 10 out of 25 years. Rate wasn't a big driver, but the timing was. There are two slides left on cover crops. Indian Creek benefits greatly from cover crops. Each block represents a percentage of the watershed where there are 100% of cover crops. The results were presented and if everyone incorporated cover crops, there could potentially be a 30% reduction. That's all.

Gregg Good: Questions?

Chuck Theiling: What about the time factor in cover crop? Seems the longer you have cover crops, the better.

Dan Perkins: The fact that it was in the negative was good. The water was taken up in the plant. It could certainly be affected by the type of cover crop, etc. People don't want to talk about constructed

wetlands. Often they don't want to take land out of production. Most farmers are stewardship conservation minded and also willing to look at programs to help them run their business. Also they are motivated by their bottom line.

Paul Davidson: The modeling approach to select the watershed is interesting. That could be a nice tool. We want to go where there is data. You can start with the ones that are priority watersheds.

Andy Casper: Is it potential for improvement or potential to detect improvement?

Dan Perkins: Potential to detect improvement.

Andy Casper: It's putting in enough BMPS to generate a signal.

Gregg Good: Trevor Sample is up next.

Trevor Sample: The point is to try to identify the sampling and data. We did Indian Creek and saw a lot of success. American Farmland Trust, took the Indian Creek model, and took it somewhere else to do phosphorus. I'm going to focus on monitoring for Macoupin. It was one of the higher yielding ones. The yield is 1.7 lbs/acre. So those who are familiar MRBI, it was created in 2009 under the Farm Bill. Extra funding was provided for these programs. Macoupin Creek received \$1 million to implement programs from 2016 to 2018. The Vermilion headwaters were one, Clear Creek, the upper Macoupin, and Clinton Lake. When talking about phosphorus, we need to reduce erosion, because that's where the phosphorus is. It's in the soil. You have to have the outreach and the money and that way, it will help get practices on ground. It will be implemented in healthy forest land. The USDA is to provide \$1.2 billion and there are three funding tools set by RCPP, critical conservation area, national, and state. Whenever these groups apply for RCPP they have to state what pool they want to compete in. Through 2014-2015, we got RCPP projects in Illinois. The Corn Growers got a huge one, \$5.3 million for trying to tie economics to conservation practices. Macoupin Creek finally received funding in 2017. The RCPP is all about partnerships. Here are all of the partners. They include AFT, IEPA, USDA-NRCS, etc. IEPA partnered with Blackburn College. The whole point of this is to reduce the amount of phosphorus lost to Macoupin Creek. The partnerships and programs include the Corn Growers Association, SWCD, etc. For water quality monitoring, we have graduate students going out to collect monthly samples, grabbing total phosphorus, TSS, and VSS, etc. The sites are shown here. So we have added some sites. So the USGS has an auto sampler at two sites. We've been talking to Paul Terrio to get a sampler, not a supergage. We would have one for sediment, one for nutrients. They do have some funding that they have identified so far. If we can sponsor this, we can get it up and running. Just real quick, here are partners, money, monitoring we want to do, etc. We talked about doing a baseline. If you don't have any baseline data, you can't show improvement. You can't show what's happening where, due to privacy concern.

Laura Keefer: FSA will let you go through that.

Trevor Sample: They let you do that?

Laura Keefer: They used to.

BREAK

Gregg Good: Just to give you a feel for the Agricultural Water Quality Partnership Forum meetings, Trevor?

Trevor Sample: The AWQPF has been meeting to answer how to go ahead and capture what farmers have been doing on their own voluntary accord. A good thing is knowing that there are other agriculture groups doing stuff outside of the state agencies. Lauren Lurkins goes and takes counts and tallies how many people she's been reaching. Before I get to the state and federal programs, I'll show the NASS survey results. This is a survey that was put together by Mark Schleusener and sent out and they received answers and compiled it in December. The survey helps us identify what the participants know and don't know. We looked at some of the BMPs in the Strategy and tried to get a handle on, "what did you do 2011" and "what are you doing 2015." It's the same thing with cover crops. We saw increases in the cover crop amount being adopted and I thought that was as a result of the outreach. Again, the return rate was 30%, but they sent out how many surveys?

Brian Miller: Maybe 5,000?

Trevor Sample: A statistical survey is how they answered and how they returned the survey. Now I'm drilling down to the federal and state programs. What are they doing? They looked at cover crops, wetlands, and CREP easement programs. Any questions?

Ann Holtrop: Is it both of the CREP/CRPs? Illinois and Kaskaskia?

Trevor Sample: They should be both.

Laura Keefer: It happened in 2011.

Trevor Sample: The CREP contracts don't kick in until the CRP contracts are done. This is only looking at those BMPs.

Laura Keefer: It's not that that many more acres are going into CRP; it's how long it is there. It's keeping the status quo with those that are there.

Brian Miller: If they are in both categories, you should be able to add them.

Trevor Sample: This is a snapshot of time.

Ann Holtrop: You could potentially have CRP and CREP counted. We both could be giving you the same acre.

Eliana Brown: I'll ask Lisa.

Ann Holtrop: Lisa Beja?

Eliana Brown: Yes.

Trevor Sample: You don't want to look at what was enrolled. Mark David put some in on some farms, testing the tiles and the effectiveness of them for bioreactors. For our own 319 grant program, we helped cost-share and can tell you exactly what was put in and how many acres. We looked at the lifespan, which could be 10 years. We looked at comparing what we put in between 2011 and 2015.

Cindy Skrukrud: That's impressive.

Trevor Sample: Whatever applications we get this year, we choose the projects that we want to fund.

Cindy Skrukrud: Do we know in terms of leaks, are we potentially going to see decreases in 319 funding?

Trevor Sample: What future funding holds, I don't know.

Rick Cobb: For the organizations that states participate in, the rumor is that there will be a 30% reduction in state grants.

Trevor Sample: So that what some of the tables look like that will go into the biennial report. In FSA, what they called a cover crop back then might be different from what it is considered now. Tying them all together has never been done before. The next meeting is April 4th for the AWQPF meeting. We are still receiving information on stormwater. We do the same exercises with agricultural BMPs as we do with the urban ones. This is a summary of the practices and the reduction that we saw from the practices.

Eliana Brown: Trevor did an enormous amount of work so thank you Trevor, FSA, and IDNR. So you may have seen the PowerPoint slide with the four measures that we have taken from Iowa. The Science Update has been written by Mark David and Greg McIssac for the Strategy and includes Water Measures. How will this be done in the future? What part will the Nutrient Monitoring Council play in that? As far as how we are doing, that's for what the report is trying to answer. I don't know if you will be doing what Mark David did before to answer how our rivers are doing. It is something I want to throw out there.

Gregg Good: Kelly will be talking about that later in her presentation.

Rick Cobb: Most of you have seen these background slides on the project. This is the Mason County tree nursery. They were trying to put in a real time probe. Here is drilling the well, here are some photos, here is the progression. So here is Bill. He was there to work to get the probes to communicate. Here is the probe data. We have depth of water table, pH, nitrate, salinity, dissolved oxygen, etc. So this is up and running and at some point we want to get input from stakeholders. We are just getting going.

Brian Miller: How deep are the wells?

Kelly Warner: Maybe like 14ft? It's shallow.

Rick Cobb: Maybe 20ft? I can't remember.

Kelly Warner: It just went in last week and the interesting thing is that it is going in next week.

Gregg Good: This is last week, and then crops go in?

Kelly Warner: It will be interesting to see what happens after a water event.

Cindy Skrukruud: These are sandy soils?

Rick Cobb: It's Mason County so it's a sandbox and also there are sand dunes.

Paul Davidson: How often do they fertilize with water flowing east to west? I had a meeting with an irrigators group.

Rick Cobb: Hopefully we can get information from a farmer on when the water is pumping. It will be interesting to see if we can see the cone of depression. You can pump the devil out of this well and not see a dent in the water or the cone of depression. It will be interesting to see what happening during the growing season.

Cindy Skrukruud: I'm thinking about MWRD producing struvite, phosphorus that is root activated.

Rick Cobb: In that meeting, that was on the industry side of the stakeholders.

Gregg Good: Next we will be talking about results generated from supergages.

Kelly Warner: We are monitoring these eight stations. We have been in operation a full year. Except Illinois River gage, which has been operating longer. What is the status? We are putting together the annual reporting out. I envisioned a 1-2 page letter, but now we have a 30 page provisional report. What we are doing is reporting out the status of these sites. We are reporting out location, data period, station summary, data summary, and equipment. The data summary for each site is between stream flow, nitrate, and nitrite load. You can look at the gray, based on turbidity. So this will all be available. That is what the annual report will be. What is the data and how is it qualified? At five years, what is the data and summarize the changes, trends, seasonally, etc. I'll pass this around; we are going to do it each year.

Cindy Skrukruud: Does it include annual load?

Kelly Warner: Daily load. No annual load.

Gregg Good: I think that's important. Can we get it in something other than grams/second?

Kelly Warner: We can convert that back.

Gregg Good: I want to caution that this is a first year, with eight stations, with data every 15 minutes. We should make it clear that there are some issues.

Kelly Warner: Nitrate loads are easy, but phosphate loads are problematic. We are hoping to be less problematic.

Gregg Good: There's stream flow, nitrate, suspended sediment, and suspended sediment load, etc.

Trevor Sample: For nitrate, you could easily come up with an annual load.

Kelly Warner: What we are finding is that we need samples at our highest and lowest flows and also highest and lowest turbidity. If a storm is coming, we have to try and get right out there. Then we will do the regression and put it out for review.

Gregg Good: You have a student looking at that?

Kelly Warner: Yes we do. I will ask if they can at least do the annual load for nitrate and for the phosphate, so that's to be decided.

Eliana Brown: So this is our first year measuring stick?

Kelly Warner: It is an annual measuring stick and then we can look back at the five years.

Eliana Brown: Our measuring stick will come from USGS and will be able to tell the community that it will be going in the correct direction. A good analogy is that we have a fever, then taking an aspirin (BMPs), and then we are taking our temperature 30 minutes later.

Trevor Sample: For the next biennial report, we will have two of these. Every five years we will look at statistical data.

Eliana Brown: We think that in the workshop, maybe that's a time to speak to them about that.

Kelly Warner: One the statewide scale, can we see it immediately? Ordinarily, no. These take time.

Gregg Good: Then by that time, the contract is up. We will have to decide on keeping Illinois Water Resources Center.

Brian Miller: If we have a federal budget too.

Gregg Good: For a success story, Justin got together and selected Joliet site for this gage. Then we decided maybe we should go down further. And voila! Basically environmental organizations IEPA and MWRD got together and MWRD is working to establish the supergage. MWRD is going to be funding that and it will be an actual supergage. The agreement is that monitoring would take place in 2018 for a four year period.

Kelly Warner: Jennifer Wasik and I have talked.

Gregg Good: Monitoring will now take place at three sites. There will also be nine superstations now. So we are starting the process of entering the agreement with USGS.

Cindy Skrukud: Thanks to MWRD and Gregg and crew for figuring this out.

Gregg Good: We can take a little bit of credit for it, but we will give all of the credit to Justin.

Cindy Skrukud: I think the agreement includes these things moving forward. As a backstop, if they need to be going lower, you can look at the discharge point.

Gregg Good: Next is the fall workshop.

Eliana Brown: The fall workshop is November 29 and 30. It will be at the Northfield Inn in Springfield. We were able to secure a \$70 state rate. Carla Blue will be sending out this information. With that, Brian Miller is up next.

Brian Miller: As many of you recall, there was a seat change at the Policy Working Group. We have 2-3 meetings a year that each last 2 or 3 hours. A lot of stuff we do touches things in other groups. So let's explore a two day workshop. Our biennial report will come out in August. For the groups doing good BMPs, you're making a difference, legislative bodies need to see the work that's being done. It's about getting appropriate agencies to participate and also where to overlap where appropriate. By November, they will be zooming in on where they are headed. So there might be a time to interface. Another group is the AWQPF. You're collecting the actual water quality information. Are we having any impact? Do you need to do something different? We know there is going to be a plenary meeting. What about the workshops? Another idea is getting the scientists working with the users. There has never really been a forum work. What are other things you would like to have done in the future? This two day meeting might also be for scientists. We don't know. Maybe a poster session?

Gregg Good: So maybe start at 10:00AM one day to 3:00PM on the second day. Are all the players on all the committees?

Brian Miller: Yes. It will be primarily the people involved in the Illinois Nutrient Loss Reduction Strategy. There are a lot of researchers, legislative folks, and agency officials.

Gregg Good: It will be primarily invitation only. What is the limit?

Brian Miller: Maybe in the 150 range?

Gregg Good: Maybe the plenary sessions will be in the morning and maybe there can be a breakout on the second day. It will be a matchmaking thing.

Ann Holtrop: I attended the Policy Working Group with Gregg and I was having a hard time envisioning the conversation.

Kelly Warner: How do we aggregate and assess nutrient monitoring with the state? That's where we might have a topical discussion. First thing I did was look at everything that's being done and monitored. What's out there and after what's out there, who's doing it and how. Maybe we should look at what Fox River is doing. The AWQPF group might have more representatives. For the nutrient standards group, what is the question?

Laura Keefer: Last time we met with NSAC was when Paul Terrio gave us a briefing. We are sitting here talking about water quality. Standards are being set and I don't want that to circle back.

Kelly Warner: What are the criteria that they are looking at? That's the question.

Gregg Good: What are the nutrient concentrations?

Laura Keefer: I think we need that list. We might find that we have a real paucity.

Cindy Skrukrud: There was already someone giving an update on Wisconsin.

Brian Miller: So maybe they are in the process? Federal funding is going to TetraTech for doing an analysis. They don't really know the answer to your question.

Cindy Skrukrud: They've now evaluated the first round of findings.

Laura Keefer: What data do they have? I haven't been asked for what data they are asking for.

Brian Miller: They have identified the data. They were making a real effort to identify the datasets to get all the apples in the same basket.

Gregg Good: June 6 is the next NMC meeting.

Eliana Brown: We met February 12 and it was a productive meeting.

Brian Miller: Their meeting is the end of May for NSAC. I believe May 17-19.

Gregg Good: Frankly, my staff will get data or coordinate data but they don't put their two cents in unless they are asked for it.

Brian Miller: I could ask if they would be willing to give a presentation in June.

Eliana Brown: There might be a webinar in July that I might be able to invite them to.

Brian Miller: That would give at least 2 interactions.

Rick Cobb: It was helpful for me. That was helpful to see the Springfield and Indian Creek presentations. What are these standards on a practical basis?

Laura Keefer: I imagine nitrate, phosphorus, and surface water standards that are needed for formulas.

Brian Miller: If you look at standards in various states. It started with one number and then they all started adding things.

Rick Cobb: The formulas are multiple variables that equal something. The original groundwater standards look different.

Cindy Skrukrud: Could we frame out the conversation? Superstations look at phosphorus and nitrate so how are we going to be tracking our progress?

Rick Cobb: Indian Creek has monitoring and modeling. Will conceptual standards work there?

Gregg Good: Is there a plan for the chair extraordinaires to get together and talk about what this workshop can do for us?

Brian Miller: I think we should be posing these questions and letting the groups self-select. There are companion questions. How do we aggregate BMPs? How do we put them together for adaptive management?

Cindy Skrukruud: I still think their group can be successful in letting us know. What help can we be to them? You got to go with that's the "before" and "after."

Kelly Warner: What if I can only collect one sample, in the middle of the stream?

Gregg Good: Moving quickly along here. Are we done with Google Docs?

Laura Keefer: Did we populate them?

Ann Holtrop: I didn't finish.

Gregg Good: In case a harmful algal bloom (HAB) happens on the Mississippi, let's learn from the HAB on the Ohio River. The #1 thing we did was compile a public health list. We have done the Fox River sites. So we have done some work on the Fox and the Ohio. As far as collecting, we are collecting and running it through the lab. It's just a new effort that is nutrient related. So let's summarize our actions.

Eliana Brown: It seems like we've halted the document. The next meeting will have the NSAC. It seems like maybe give this group some guidance.

Gregg Good: We do have the June 6 meeting scheduled. Okay? Okay. And have we ever set dates beyond that? September 12 is the Illinois River Conference. September 6 is another Nutrient Monitoring Council. No meeting on December 5.

Brian Miller: Thanks everyone for joining us today! I think that's it and you all are free to go!