

DRAFT Notes
Point Source Subcommittee Meeting
Illinois State Water Survey: Illinois Room
13 November 2013
9:30 am to 12 pm

Summary:

- Introduction: Subcommittee will advise state on writing strategy, but state agencies will have the final say on what is included
- IAWA Presentation:
 - Flexibility in permit requirements will allow treatment plants to achieve best results in nutrient reductions
 - Require plants to perform evaluations to identify simple upgrades and where plants will need assistance
 - Some plants do not have resources to upgrade, thus requiring alternative strategies to achieve compliance
 - Creating an Environmental Utility would provide funding sources for statewide efforts to reduce nutrient pollution
- Discussion:
 - Environmental Utility
 - Funding mechanism
 - Allows/requires involvement from every nutrient source
 - May qualify for a demonstration project with USEPA
 - Covered in-depth in February
 - Provides mechanisms to address nutrient problem, rather than assign blame
 - Concentration Limits
 - Ability to tie concentration to flow
 - Wastewater treatment plans need flexibility
 - Not all plants have means to upgrade
 - Limits might result in lower performance
 - Ways to include flexibility in a permit include: technological requirements, multi-year requirements, and the options for alternative treatment methods.
 - Flexible permits will require some means to ensure compliance.
 - The state needs to establish better monitoring to determine what impacts treatment plants have on surface waters.
 - Cannot determine if plants are improving discharge unless there are data
 - 303d and 305b are a starting place, but are often based on inadequate data.
 - If TMDL requirements are stricter than numeric limits for a specific body of water, the TMDL will be followed.
 - Small plants should be included in Nutrient Reduction Strategy

- Next steps and Action Items
 - Next meeting held in January or February
 - IAWA should develop a list of questions for an example plant evaluation
 - IEPA will provide permit language information about the Fox River and MWRD permits when those are complete.

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## I. Introduction

- a. Purpose of Subcommittee
- b. Plan of Action
- c. Expected Schedule
  - i. March
  - ii. Expected Summer 2014 for the entire strategy
  - iii. State agencies draft document, but review and comment from the Advisory group
  - iv. If subcommittee cannot come to consensus, or State agencies can't manage the direction, then final decision on strategy is on state agencies
  - v. IEPA approach in the past is try to gather collective wisdom from those most impacted by the decisions
  - vi. Questions aren't totality of discussion, can add more questions later
    1. Based off state and stakeholder comments thus far
  - vii. Last Working Group meeting had small breakout session, convened to discuss topics for this mtg

## II. Presentation by IAWA

- a. Maintain flexibility and alternate solutions
  - i. Integrated planning, etc. –same idea—is a difficult situation, can't use same solution as past b/c not terribly effective
    1. Cannot be afterthought
    2. Integrated part of whole plan
  - ii. Integrated planning:
    1. Locate Biggest problem—nutrients, habitat, other
    2. Case by case decision
      - a. Looking at totality of plan
      - b. What adequate in one basin, may not be sufficient in another
  - iii. Watershed planning
    1. Look at entirety of problem and solution
    2. No local benefits, hard to sell plan
      - a. Can be small fraction of total, but will need
  - iv. Biological Nutrient Removal Preferred
    1. Logical to install
    2. Lowest carbon footprint
    3. Can't train bugs to reach a certain #, but must be under half to reach .5 mg/L
    4. Gets excellent performance, not just compliance

5. Denitrification as an added bonus
6. Less energy required
7. Less biosolid production
8. Carbon footprint small for bio vs. chem system
- v. Biological Nutrient Removal
  1. Need longer permits—yearly rather than monthly/daily
    - a. More likely to get a one day upset—bio system could result in violation
  2. Longer construction planning window
    - a. Most plants include bio components—
  3. Permit revisions
    - a. Reason bio systems aren't started in general b/c fear on operators' part of violation
      - i. Want to shift emphasis to excellent operation
    - b. Stop emphasizing short term violations, look at long-term performance
  4. Chem systems not required
- vi. Stoner Memo Paragraph 3:
  1. Looking at targeting limits and solutions to local areas
  2. Evaluation—look at data and particular watershed
  3. Doesn't recommend statewide limits (not support one size fits all)
- vii. Priority Watersheds need Preservation
  1. Water bodies w/o sources of anthropogenic Nutrients
    - a. Protect—look to alternatives to discharging to streams
- viii. Sub-watersheds with Local Impacts
  1. Local nutrient impairments
    - a. Where are DO swings—local nutrient impacts, need to fix
    - b. Fixing at plant looking at numeric limits
    - c. If fixing plant discharge doesn't fix the problem, and data demonstrates that treatment plants aren't only source—what are other nutrient sources?
      - i. Work on those first
- ix. Gulf hypoxia is a continental problem
  1. Not a local targeted watershed
  2. Pounds removal/avoided equally effective anywhere in state and solutions available are more than just local problems
  3. Best way to reduce pounds
    - a. Point Source can reduce 40-70% by what's in the works now—MWRD projects, etc.
    - b. Efforts over past 15 years are having effect
- x. NPDES Permits
  1. Continue to document effluent data
  2. Compare statewide plans

- a. Look at how close we are to 45% reduction, including current plans
- 3. Have all plants look at optimization, what is cheap and effective, and have them do it
  - a. Many can do better, if they get around to doing it
    - i. Force vote on whether they should do it
      - 1. Put that challenge to boards, look for community support
- 4. Why not one size fits all?
  - a. Suspect we can get over 45% at point sources with what planned thus far
  - b. Semi-voluntary progress should continue
  - c. Current actions plus enhanced narrative
  - d. Need a step with everybody contributing what they can
    - i. Looking at alternatives that will solve problem, and forcing them to look at this things might make a big difference
  - e. IEPA permits
    - i. Permits for targeted watersheds
    - ii. Assurance
  - f. Adaptive management requires evaluation
    - i. Need accurate data for evaluations
    - ii. Beyond ballpark estimates
    - iii. Studies at each treatment plant
      - 1. Require each plant to look at nutrients
    - iv. Then have real money estimates
  - g. Next logical step
    - i. Option to re-open permits, esp. with big local issues
      - 1. What help can IEPA give community
- 5. January discussion:
  - a. Have a consensus of stakeholders—we have a statewide problem, need a statewide solution
  - b. Illinois Environmental Utility
    - i. Solving problems
    - ii. Stop assessing blame
    - iii. Look at biggest sources of problems and find funding to get fixed
    - iv. Point Source—hoping studying NPDES permits and how each plant can contribute to solution
- 6. Questions/Comments:
  - a. Utility? Funding Source? Bill?
    - i. Yes, first job is figure out nutrients—what are the gaping holes and how to address?
    - ii. Like the idea—makes sense

1. Whether urban or rural, we all share economy and all source of nutrients, so let's admit to that and work on group funding source—easier to get point source buy-in if it's not based on activity
2. Helper rather than layer of blame
3. Add: look at what's been done—lots of money on numerical limits and permit side, not very effective/efficient—utility could target large amount of money to reduce nutrients in short amount of time—looking for best return on the money available—where is the biggest problem. Go with numeric limits, everyone dragging feet because no one has any money. This provides incentive to bring everyone on board. Has ability to engage agriculture on a watershed type basis. Also, because there is a source of money, allows the SRF to do what it's meant to do. If numeric limits go in, then everyone's limits will tie up SRF forever. It will all go to reducing nutrients, and all the other updates will go to back burner, thus making them more expensive.
- iii. Q: anything concrete about utility funding source?
  1. Main agenda item in January Working Group to discuss this concept
  2. Idea: assessment of landowners/businesses, etc. in entity that would go to this
- iv. Who is giving this presentation?
  1. David St. Pierre
- v. Concept that's been rolled out as alternative to what's been done in other places
  1. As think about it, radically different approach, if we can figure out puzzle pieces and get into place, could have a profound effect as alternative on what have tried to do before. Answers to all these questions aren't there yet.
- vi. Money will help solve problems—so alternatives are good ideas
- vii. Ex. The 911 system—small fee in phone bill

- viii. Some ideas don't seem politically feasible, but hoping for more fleshed out in January
- ix. 15 years of interaction with agriculture, and they still aren't really on board
  - 1. Point Sources alone won't get us to Gulf of Mexico Hypoxia problem
  - 2. Keep an open mind at January mtg
  - 3. A good idea because help us to all push together—because just focusing on point sources won't get to solution
- b. If utility is formed—do this and bio nutrient removal
  - i. Every treatment plant looking at what can I do, reasonably. Once have the cheap reductions in place, do them. Then look at ideas for what's next.
- c. All plants are different—ex. plant serves community with annual income of >30k, so can't charge more money from people
- d. What about USEPA buy-in. Will they support utility?
  - i. Concept of utility could be candidate for a USEPA demonstration project—which gets time and money
  - ii. Anyone interested needs to talk to David and come to January mtg
  - iii. Everyone needs to think about
  - iv. Marcia: different responses from different people sometime. Seems to be a willingness to work with how to develop strategy on a watershed basis. Less concerned about funding, but more concerned about timing in a certain watershed. Stoner memo says focus on highest loading watersheds. Need to sell local benefits. Wise of us to keep USEPA involved in discussion. They aren't involved yet, because this is Illinois basis thus far. Suspect they will support looking at watershed basis, taking different approach as needed.
- e. Think of Utility as funding source—that's all it is at this point
- f. Funding source that collects funds in a way that would benefit lower income communities would be a big plus. If look at statewide numeric limits, then will have higher impact low-income communities. Can level the playing field, will let us move things more quickly.
- g. Getting down nutrients, but another issue for future discussion—how do we locate those areas that need

- some help, and then how do we work on those? Limits won't get us there, but over time, how to address those
- h. Brian: local benefits added to priority watersheds: biological, water quality, and probability of success. Never discussed what that means and how to measure those. But, these are criteria to include, and let's look at ideas of how to measure and identify.
    - i. Much of discussion was technology approaches, but also recognizing that there are situations where have to do better, not sure how, but there may be places where need chemical treatment. Maybe technical options will change over time. Over time, will need to do better than the numbers we're talking about. Not necessarily today, but there is a second step.
    - ii. Real, local problem associated with flow—we'll work on fixing that. If that means chemical treatment or more technology, then most plants will say "my problem, we'll work on that"
  - i. How to identify what local problems are? Then how to find solutions?
    - i. Yes, look at Fox River. Spent lots of time and money to identify problem, now looking at plan, that might take a lot of time to get there, but pursue that.
  - j. P is 50/50 PS/NPS and N is 85/15 (**Is this correct?**)—so utility—what does make sense for those NPS? How address those with utility
    - i. State with the high load watersheds
    - ii. But if 85% N is NPS, then what do? Literally go to farmers and start chatting? Yes.
      1. Incentives are more difficult
      2. BMPs to agriculture side are incremental costs-which means a lot to farmers
      3. So, look at targeted watersheds, can see how much money needs to be available to agriculture people to make these changes
    - iii. Sweet spot of agriculture groups—those practices that get nutrient reductions by optimizing crop needs and improve productivity—might not take care of everything, but will probably be most popular.
  - k. Since we are Point Source discussion—Science Team data—most nutrients contributed from watersheds, are from Des Plaines and Chicago-area—need to keep this in mind.

### **III. Facilitated Discussion:**

**a. Based on the baseline loading information in the Science Assessment to date, a significant contribution to phosphorus loading comes from point sources in the Illinois basin. It has been noted that a requirement that limited major discharges to an effluent limit of 1mg/L phosphorus would address these contributions.**

1. Why a concentration limit?
  - a. Can tie loading to flow—this is an approach
2. If more flexibility and having people work on what they can get done, may exceed goal of the limit without having to impose the limit
  - a. How to structure that flexibility in a permit?
    - i. As part of permit must do some planning—what technologies are available, etc. so rather than strict limit, impose technology solutions.
  - b. Presentation—annual limit—could write up as annual limit. Agree a daily is hard. If we look purely at Gulf of Mexico, then there is seasonality to this. Take stream flow into consideration, especially if annual limit. Conversely, can do much better than 1 on an annual basis. In terms of planning want to come up with .5/.6 even .3 in long run on a basis other than daily. This will be important when we start looking at these numbers. A lot of pounds between these numbers.
    - i. Then have situation where apply same technology in different plants, and reaching different numbers. Maybe the thing to do, maybe have some flexibility over who hits 1 or .5, etc.
    - ii. Doesn't seem to be hesitancy about hitting 1
      1. Because that's what everyone's facing
    - iii. How do we hit those numbers? Scrap \$4mil dollars of equipment, or do we look at things like sidestream treatment?
    - iv. Difference in influent may be driving this
    - v. Need more than P
  - c. Seems like in most cases can hit these numbers or better over time
    - i. Key is *most* cases—that's why need flexibility
  - d. Need flexibility, but also need some number to hit.
    - i. 1 seems to be snap, and looking at lower numbers
  - e. In Fox River—look at each major facility and what have to do to look at 1 and .5—so why can't put that in each facility permit right now that they need to do an evaluation

- i. In Illinois have permits with limits and schedules. Conditions in Fox River. Is there need for discussion in the case of Fox. In DuPage—look at this material. What are the numbers? Once get that conversation going, then IEPA will say we think we know what will work and what won't—come up with conditions that go into permits. That will be overall picture. Des Plaines not working on it. Will be case-by-case. If facility has certain problems, etc. they need to bring this to the Agency's attention when writing the permit. Don't know the endpoint. We know nutrient reduction needs to happen. Those boundaries, artificial or not, they do exist. And progress is happening. Is there a totally different strategy?
- f. Need for concentration-based limit, will become more evident as continue conversations with USEPA. Kansas had a very technology-based approach, assume permits are driving technical requirements.
- g. Need numeric limits, but why fixed? Why can't say over x-number of years, have goal written in? Most water treatment people are looking to achieve better results.
  - i. How to measure compliance?
    - 1. Stream health?
    - 2. What is benefit in achieving these goals to landlocked treatment facility?
- h. No utility—everybody has to do such and such, and then start to summarize reductions at first level of permit cycles. Everyone hits a certain level. Now what? Some of these areas can get higher reductions with technology, and start putting a pool of money available. Hit the low hanging fruit, what is the next low hanging fruit, and now do we have some money to invest in the next phase?
- i. Still have concern over technology or limits, if these standards won't solve the problem, need to keep that part of discussion.
  - i. If plant gets a limit or technology adoption—there is a project to go do. Bigger project if given limit.
  - ii. Marcia: Needs to be measurable and reportable in some way.
  - iii. MWRD's demonstrations show that bio-P is getting 2/3<sup>rd</sup>'s reduction of what discharging, and they aren't looking at chemical reduction to

get there. Having flexibility over limits, applying same technology everywhere will usually see the same percentage reductions

- iv. I think we're in agreement: let's figure out what we can do. Document what doing now. Figure out next target after that. Who/what is next on list. What can be done reasonably/effectively. Need P data, so we can see the load, and then look at the problem. Two steps back and evaluate. Then IEPA can say: why is your data different? If no good reason, fix it. If not, then why not, and how do we all fix this? Evaluate where at, how progress is made, and then what.
  - 1. Need data—what nutrients
  - 2. Everyone needs to study their plants
- v. Do we ultimately looking ahead to having a numerical limit? Are we asking for the impossible?
  - 1. Haven't heard anything to say impossible
  - 2. Don't know if Kansas passed legislation, think just came to agreement that everyone's permits will have.
- vi. Fox River—voluntary—requirements in permits have appeared due to agreement and got pretty far
- vii. Point Sources of nutrients—might be the next target/priority watersheds.
- viii. Why focus at major watersheds? Why not go higher? 29 plants statewide are responsible for half the load. Why not go there?
  - 1. Big plants, with advanced technology
  - 2. Priority watersheds, and then how do you slice the rest of it? 1 or 3? Look at stats of what plants are
  - 3. IEPA takes these cases into account.
  - 4. Point Source approach will be implemented by NPDES and permits
- ix. Not wedded to a number—want to hear about it. Need to see some studies for these numbers, and there may be exceptions. Focus on other ones. Big plants, 1 is not the number. Can assume the big plants will hit .5, then have more room for the little ones to hit 1 or exceptions.

**ii. What would be an approach to phasing or tiering phosphorus reductions?**

1. **For example, what about an overall time limit:**
  - a. **2 or 3 permit cycles?**
  - b. **Other ideas?**
2. **Should highest concentrations or discharges with highest loading be addressed first?**
3. **Should there be a de minimis?**
4. **Should there be exceptions, and what should they be?**
5. **Summary: need flexibility—some plants can do more than others. Need to do on a priority basis.**
  - a. Q: some plants can do better than others—in February we're discussing innovative approaches, including trading. How allow flexibility among plants and still reach an overall goal?: any initial thinking on that:
    - i. Worth talking about. Patchy success thus far, but a whole industry evolved.
    - ii. One way to address differences in efficiency and cost
    - iii. Works well if aggregate goal at downstream spot—can only trade up, not down. But in statewide reduction, is a perfect situation.
    - iv. Might work better for N than P.
      1. Typically see more P in local issues, than N. That's why a goal at watershed point would work better.
    - v. Wisconsin has a trading option. Some of the barriers there are seasonal contributions, esp. for point and nps trades. Balancing seasonal has been difficult. Determining appropriate trade ratios for NP side. Is complicated.
  - b. Any ideas on industrial side?
    - i. Little difficult for us because industrial categories with a lot of organic matter aren't currently looking at this. Tend to look more at impacts.
  - c. Other models in other states that you'd like to throw on the table: Wisconsin has implemented different models, and avoided pure-technology based reduction. Kansas also a good example.
- b. There will be situations in which local water quality requirements (i.e. TMDLs) will dictate tighter limits than the hypoxia-related limits. How should those situations be addressed in the Nutrient Reduction Strategy?
  - i. What measuring:
    1. Aren't we just documenting what we're doing? Strategy needs to acknowledge and document what doing
    2. Aquatic life document in local issues needs to be done so can fix local problems. Local monitoring would address this, right?

3. Mark David has put some of this together. 303b and 305d are listed. We already know these impairments, then should address these.
  4. Not doing necessary data collection to make these assessments. No continuous DO meter on the IL River System south of the Chicago River. So have a hard time start with this, because no data. Our (Environmental Coalition?) position to IEPA, don't renew permit if don't have data to know if problems exist. If we can ID local impacts, some will be tough. Will involve small communities without the money. So how to address these problems? May take decades to solve the problems. Do insist problem be solved, and insist the monitoring take place.
  5. There is a lack of data, and that might be why some 303d streams listed.
  6. Many 303d lists are done without much data.
  7. 303d/305b are a starting point.
  8. But lists are evaluated and based on standards.
  9. State data is being collected—just not sure where those meters located.
  10. State doesn't leave meters out. We can't leave out during winter, because DO meters freeze.
  11. DO standard or \_\_\_\_\_. Know that data and monitoring needs to be collected. But need to ask how are assessing data? Could change tomorrow if change standards. Maybe focus needs to be, if identifying local issues, then what criteria are we using?
  12. Moser rules—depends on DO. Don't have those data
  13. Don't have them, because no rule about that. Change the rule; change what data are collected.
  14. Depending on approach we take, will need to have more stringent requirements. Need to make clear that more stringent requirements will dictate. TMDL will top state strategy if more strict.
  15. Will be situation that more stringent reductions will be required by local conditions.
    - a. Haven't heard anyone object to this.
  16. What being measured depends on requirement. So question: should other things be in the requirements?
    - a. We're translating narratives. Is that ok, or do we need more than this? If we want to go beyond, then think outside box.
- c. What other elements should be included in the Nutrient Reduction Plan for point sources?
- i. Small plants—alternative systems. Land treatment, other systems. Maybe the answer for small, landlocked plants is to go to something else.

1. Does that technology exist?
2. Yes, and used in a number of places—being used in large systems in South. Doesn't work as well here. Seem to be large land treatment systems doing 0.5 mil gallons/day
3. What about a land treatment that is seasonal? Have to treat anyways,
4. Some regulatory burdens on the operations of these things. Wanted to bring those up. Some requirements that don't make sense.
5. Talking about things that will be developed over time, and shouldn't assume that we'll have the same tech over the time.
6. Proponent of land application, but something to think about is climate change—lot of rain years, what about those systems. Keep those issues in mind.
7. Strategies discussed thus far—each facility doing evaluation over best means of nutrient removal, which opens the door for smaller facilities to evaluate these methods. Look at these options, and how the Agency structures these requirements could look at numeric requirements.
8. What kind of time frame should these be evaluated?
  - a. Every 5 years seems reasonable
9. Out-of-the box treatment consideration, even if seasonal, so long as these facilities were getting credits over time, they could take advantage of key times, and not be held to same standards during times they can't get removal.
- ii. Flexibility: land use planning—ordinances don't allow for a lot of change. Some communities allow for one-on-one evaluation and negotiation. Sounds like the type of case-by-case permit review asking for.
  1. Doesn't sound that different from watershed approaches—case-by-case strategy
  2. Spelling it out a little more clearly
  3. Sanjay: that flexibility is available for things like land apply for 3/6 months. Sounds like asking for \_\_\_\_\_. Is that necessary?
  4. Is that baseline, default condition?
  5. Can I achieve same load reduction by doing x,y,z?
    - a. Yes, open to that, but will need USPEA to sign-off. But we would ask USEPA if there is an effort to hit the nutrient reduction efforts, will try that.

#### IV. What's next?

- a. Reconvene with more targeted questions:
- b. More information the group would like to see?
  - i. Fox River, MWRD permits,--is that info helpful?
    1. Yes
  - ii. Or, next discussion with rough draft of the point source strategy?
  - iii. Also, have some plant data available?

1. Yes, would like
2. Paper at WEFTEC—have those data—will share—organized by plant size, volume, loads
- iv. Talk about what's coming down the road? Like Fox River, etc.
  1. Not yet
- v. What kind of load reduction is goal
  1. Some discussion this afternoon
- vi. Lot of discussion about technology—maybe IEPA should develop facts on circumstances in hardships. Here flexibility, think making excuses. Maybe IEPA can develop general paper after reading facility evaluations with some general ideas.
- vii. In terms of data—regional watershed picture goals—what is the database, and is it adequate? Talking about data, never enough, but must start someplace. So comments on whether strategy can be discussed with the amount of data we have?
  1. What is monitoring strategy and data have? And is it enough?
    - a. What do we currently have, statewide—USGS, Surveys, etc.
- viii. January/February—same day as the Working Group meeting
- ix. Did we address time limits, etc?
  1. District programs
  2. Fox
  3. MWRD
  4. DuPage has different approach
  5. IAWA—optimal time frame—facility eval, and what timeframe to commit to it?
    - a. If in growth phase, easy
    - b. If have structural impediments, and no other reason to do construction project
    - c. Would like to say one permit cycle, some will be a lot slower. No way to answer when, until looked at it. Need to look at facility. Can't answer for entire group. Need to summarize where we are with plants that are out there with new construction.
- x. Standard questions for the facilities:
  1. What can you do with your existing footprint?
  2. Is there an industry assessment strategy?
  3. Age, infrastructure, community growth, community ability to pay—
- xi. Point sources besides municipal—what about industrial sources?
  1. Many industries use land application, may be less complicated
  2. Scanning NPDES database and look who has nutrient discharge