

**DRAFT Notes**  
Point Source Rough Draft Review Meeting  
19 February 2014  
Blue and Orange Room, Illini Center  
200 S. Wacker Drive, Chicago, IL 60606

**Summary:**

- I. Environmental Sector Policy Recommendations
  - a. IEPA should include monthly average phosphorus effluent limits of 0.3 mg/L in NPDES permits for the 20 largest sewage treatment plants in the state, and 1.0 mg/L for all other majors;
  - b. In cases where biological nutrient removal technology is used to remove phosphorus, the IEPA should require a monthly average total nitrogen effluent limit of 8 mg/L;
  - c. IEPA should include water quality-based effluent limits in NPDES permits for total nitrogen and for phosphorus using the “offensive conditions,” “unnatural sludge,” and dissolved oxygen water quality standards;
  - d. IEPA should prioritize funding from the Water Pollution Control Loan Program for nutrient reduction projects; and
  - e. IEPA should support watershed group pollution cleanup plans that include studies determining the levels of phosphorus reductions needed to meet narrative and dissolved oxygen standards, interim phosphorus limits, and implementation plans designed to meet water quality standards over time.
- II. Introduction to Point Source Rough Draft
  - a. Rough draft is a starting point for discussion and is still missing elements, particularly regarding nitrogen and industrial discharge
  - b. New federal ammonia standard will not have effects on total nitrogen—can be removed from rough draft
  - c. IEPA’s preference is that facility plans would be incorporated into facility permits
- III. Facilitated Discussion
  - a. IAWA recap:
    - i. Facilities are limited by service area and infrastructure, consequently prefer flexible permit requirements and no statewide numeric limits
    - ii. Support each facility maximizing nutrient reduction within current footprint and address shortfalls on case-by-case basis
    - iii. Use local watershed approach to provide local benefits while addressing Gulf of Mexico hypoxia
  - b. Contribution of Point Sources—no changes
  - c. Existing Programs
    - i. TMDLs—no changes
    - ii. NPDES Permit Limits
      1. 1 mg/L is good for the Gulf of Mexico, but isn’t protective of local water quality

2. An additional element to the offensive conditions standard— unsupported
  3. In addition to 45% nutrient reduction in Illinois, also a desire for local water quality improvements:
    - a. 1 mg/L is a short-term goal
    - b. water quality standards should be strengthened
    - c. develop a process that triggers more stringent discharge requirements
- iii. Watershed Planning
    1. Unique to each watershed
    2. Incentives
      - a. A decrease in permit objections by environmental community
      - b. Watershed groups are motivated by improved water quality
      - c. New Farm Bill funds
      - d. Gathers local actors together
      - e. Seasonal incentives
    - iv. MWRDGC Limits—no changes
  - d. Future Actions—no changes
  - e. Additional Strategic Actions
    - i. Bio-P Removal
      1. 0.3 mg/L will be difficult and expensive to reach
      2. The environmental community is willing to consider other approaches that include technology, as long as there are enforceable goals
        - a. Possibility of seasonal limits
      3. Point source reductions are not going to be sufficient to reach the 45% goal—agriculture must be involved
      4. It takes time to ensure that bio-P removal works
        - a. Chemical or filtration back-up would be expensive with high environmental impacts
      5. If Gulf of Mexico hypoxia is only goal, then annual limits are sufficient
        - a. Local water quality isn't sufficiently protected by annual limits
        - b. We should consider seasonal changes in determining limits
    - ii. Compliance Options
      1. Funding options
        - a. Loans, grants, and cost-share
  - f. Measures of Progress Reporting—no changes

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## Complete Notes:

- I. Introduction
  - a. Timeline review
  - b. Meeting strategy and structure
- II. Environmental Sector Policy Recommendations—Cindy Skrukrud, Illinois Chapter, Sierra Club
  - a. 5 points/recommendations
  - b. Monthly average P limits of 0.3mg/L for 20 largest dischargers, 1mg/L for all others
    - i. Opportunity to achieve most bang for buck
    - ii. Greatest reduction in P-loading in smallest number of facilities
    - iii. Those plants have more capabilities to achieve these lower levels
    - iv. There are other examples of plants around the US achieving these levels
    - v. Discharge levels must be addressed to achieve reduction in local waters
  - c. Bio-nutrient reduction
    - i. Agree with encouragement of this method
    - ii. If denitrification is part of process, facilities should be able to hit 8mg/L per month
  - d. Offensive conditions
    - i. Nutrient reductions
    - ii. Nutrient impairments—should look at discharge levels needed to not contribute to impairments
  - e. IEPA/IL government
    - i. Currently, more money in state revolving funds under Clean Water Initiative
    - ii. Projects that result in nutrient reductions should be prioritized for funding
  - f. IEPA should support watershed group pollution cleanup plans, including determining P-levels to resolve nutrient impairments
    - i. Implementation plan to get us to final goal of resolving nutrient impairments
    - ii. This language should be included under compliance options
  - g. Questions:
    - i. Elaborate on permit limits, when should these be implemented? At facility's next renewal? Or a couple permit cycles, what is the thought?
      - 1. Expect that will be determined at a site and facility basis to get to lower level
    - ii. Stop funding other issues, or just that nutrients get a bump?
      - 1. Yes, just prioritize nutrients, not stop funding other projects
    - iii. Any bio-P process will include some N removal, but an effective removal process will not necessarily meet the 8mg/L, so where did the 8 come from, and is it really the priority of this portion of the plan

to knock down N to that level, if it costs more so than to just decrease P?

1. Discussion we need to have. Our recommendation is broad, so need to discuss the process. There are plants adding bio-P and got N reductions and hit the 8mg/L. This is in existing permits in other states.
- iv. Point 5—something specific or just a general concept?
  1. There are a number of watershed groups already listed. Want to support those groups and find ways to support new groups. There are benefits from having engaged watershed groups
- v. 0.3 for P—tech based, or room for flexibility for plants with different wastewater characteristics
  1. Yes, there needs to be flexibility based on inputs to facility
- vi. 0.3 suggesting—effluent for larger communities. Concern that limit might be higher at first, and then trouble to turn around have to add new technology
  1. Agree, need to have people engaged in watershed effort to determine what number to achieve resolution to nutrient impairments
- vii. 8 mg/L achievable for many facilities—but those with low YI—will be harder to achieve.
- viii. Sense of cost for those 20 facilities to hit 0.3?
  1. No—but an issue to discuss
- ix. Letter talks a lot about permit limits and technology —question: what is more important—application of technology or the permit limits? From treatment facilities' standpoint, technology is a more defined cost, but a limit changes a lot from location to location—first level of bio-P or assign numbers on case-by-case basis, or suggesting the limits to deploy more technology to a lot of different places?
  1. Easier to install the technology and hit certain levels, but concern about enforcement problems. So working on how to do that. What if the technology doesn't work or the city council doesn't support the expense of the technology and turns it off, so does that result in an enforcement action? Need to be flexible, but not so flexible that they can't be enforced.
  2. This is something we would like to discuss. Esp. fig. 2, etc.
- x. Summarize point source—when we can get around to installing bio-P standard, on board. However, when the permit requires filtration, strong desire not to add that expense or environmental impact. Require treatment, but not extreme treatment. We don't want high cost or high carbon requirement, but want to do things right
- xi. What about install technology, monitor results for 3-5 years and then go to limits?
  1. Can probably come up with numbers that should say no number higher than X if technology is installed—initial permit and work with that

2. Prefer a monthly limit, because annual is difficult to enforce
- III. Introduction to the Rough Draft—Marcia Willhite, IEPA
- a. Very rough draft so can start the discussion, deals very lightly with nitrogen. Don't have an idea on the numbers as much, yet
    - i. Nor much focus on industrial, but still need to work on this a bit more. Will be refined for future draft
  - b. TMDLs
    - i. All lakes?
      1. Most but not all, use nitrate limits
  - c. Chart showing reduction at plants at 1 mg/L: are showing new plants, or is this the top 20 majors?
    - i. This is all majors—58 at 1.0 mg/L and assuming reach 0.7 mg/L
    - ii. Assumed 3 mg/L when didn't have actual data
    - iii. w/ standard 1980 to 1996?
      1. No, from 2009 or later
      2. But made some progress since the 1996—so this should be better
      3. Really focused on the current conditions—Science Assessment
      4. When looking at this for USEPA, we should do what MN did, saying how far Illinois has gone already
      5. Total load from state has actually gone up from earlier period, not necessarily from point sources
  - d. If meet the new ammonia standards, will that do any denitrification? And does it do anything for total N?
    - i. Nope.
    - ii. So strike that?
    - iii. Can't denitrify until nitrify?
    - iv. Might it drive the adoption of a different practice?
    - v. Is national standard driving more toward toxicity?
      1. Yes, but told there may be a co-benefit here
    - vi. For places that don't nitrify at all, have the option to actually do some denitrification
  - e. Fox River— isn't looking at what can achieve, it is a specific target and then look at feasibility and cost of reaching targets?
    - i. As a watershed, looking at what watershed discharge decreases need to see
    - ii. One of the points with optimization—do we all move to biological nutrient removal, or do we go even lower, especially during growing season? Is that the time to get effluent levels down? Is that something to think about in other facilities?
  - f. Nutrients facility plan? Would that go into permit?
    - i. IEPA would like in permit, regulated community prefer not in permit
  - g. Nutrient Facility Plan?
    - i. Sounds different than implementation plan
    - ii. Best you can do with what have now, as start? And what technology needed to add to achieve higher levels of reduction?

1. Best return on investment strategy—lowest cost strategies, then move to more expensive and elaborate
- iii. Seems nebulous without some kind of target
  1. We should expect that every consulting engineer should ask: what are the logical stopping points?
  2. Look at influent characteristics—may be able to generate better estimates of load reductions possible

#### IV. Facilitated Discussion

##### a. IAWA Recap

##### b. Rough Draft Review

##### i. Contribution of Point Sources

1. Correct contributions of point sources for statewide nutrient reductions

##### ii. Existing Programs

##### 1. TMDLs

- a. Monitoring lacking in state, need to adjust to get to TMDL, so problem is that many states using narrative standards, we're not, not going to see improvement under existing conditions

##### 2. NPDES Permit Limits

- a. What is written is good for the Gulf, but not looking at local impacts. No one believes 1 mg/L is protective, but there may be places that it will help. State not doing much to enforce narrative limits at the moment. May hit the 45% reduction, but not going to help impaired waters

##### i. If narrative is structured so it can tie back to aquatic life use, can tie to P-control requirement?

1. No, the narrative in itself is useful. It is protecting recreation, but should redefine narrative to aquatic life use

##### ii. No, IEPA is suggesting that we expand narrative standard and monitor it. Saying adding an additional element.

1. No, offensive conditions offers some protection for aquatic life. Need additional nutrient standard. Right now offensive conditions.
2. Underlying problem is that most of the recommendations are technology based.
  - a. Fox River is a stronger example because of the numeric standard.
  - b. Perhaps better to adopt the Wisconsin numbers as a numeric standard, although this will take time.

- c. If we are going to go watershed-by-watershed, we need to get more aggressive with monitoring.
  - d. If number is 1 mg/L—how to reach next level? Not building into permits a structure that will get Illinois to next goal
- iii. Illinois N reduction—45% reduction, other thing hearing: there are local water quality needs that should kick in regarding permit requirements. Appears we're developing a tiered system—looking at national hypoxia goal, trigger local water quality problem—then dig down, watershed groups, standards—this correct?
- 1. Look at our suggestion that largest facilities go to lower levels? Look at 1mg/L, that's a 160 facilities not doing P removal. What are these conditions, local conditions, does that fit these two pieces together?
  - 2. Essence of best management: best return on investment on approach is this outline:
    - a. Look at local conditions—does removing P in these areas address local problems?
    - b. But we have a number of goals—Gulf goal, facilities doing best with what they have, and then move to what to do next. Need to systemically step through these things. We don't have the economy to support these needs. If take a systematic approach and move forward with certain goals and define the timeline, schedule built into the approach. That might get us there
    - c. But problem is no water based quality limits, which are required by law.
      - i. Best way to achieve these goals is nutrient trading program. This provides mechanism to discover who can do most cost effectively and have best local impacts

- 3. Starting to hear some agreement over strategy to 45% reduction—short-term interim goal, water quality standards, process in place to meet local water quality goals. Environmental sector supports timeline and ultimate targets to achieve these goals?
  - a. State isn't making things "kick in." State isn't doing numeric nutrient standard process, so there is no trigger
  - b. Can have the trigger discussion in May. That's where to have that discussion
  - c. Two thoughts: trading, keep saying going to solve problems, but it hasn't changed things much. Hasn't worked on broad level, but shouldn't think we can put in stringent requirements because trading will solve all the problems. Can be a part of the system
    - i. Water quality based standards, talking about designated uses not reasonable potential and how to attain, what are parameters, impacts on aquatic life? Can't just say we need P-limits because water quality based limits do not always correlate to Biological stressors
  - d. Monitoring. Takes money to do this, but part of the strategy. How to do this?
    - i. Will tackle this in March

### 3. Watershed Planning Efforts

- a. Different watersheds have different models—Cleanup plan
  - i. DuPage plan model: addressing local habitat and aquatic life plans and looks at biological impairments
  - ii. Bringing structure into the equation to look at aquatic issues. Chemistry only looks at some of the issues, and we want to look at the totality



- iii. What kind of plan and what is in it?
- iv. Watershed plans are unique—rural and urban—in rural is a great opportunity to start engaging agriculture groups, but from POTW standpoint isn't main goal, but a nice benefit in rural watershed

b. Incentive

- i. We're [environmental sector] objecting to permits unless there is a plan to implement plans, would like to see agency involvement to push for permit. Environmental groups shouldn't be only push
- ii. Other incentives—positives
  - 1. Typically, people in watershed want water quality issues to be appropriately identified and want it to be accurate and comprehensive. These are things IEPA could encourage more
  - 2. New Farm Bill target watersheds in Upper Mississippi. May provide financial support
  - 3. 319 funding
  - 4. Cost to watersheds to do research and monitoring to develop plan—whatever funding is from IEPA
- iii. Getting groups together on a regular basis. Lot of POTWs that don't work together often. This is helpful, and they will probably not come together on their own.
  - 1. Will be a section of the plan addressing education and outreach—facilitation could also be part of that
- iv. Maybe incentive might be to let local groups develop seasonal incentives
- v. Biological nutrient—build, design, hope it works: reach 0.3 will need to hit 0.2 or .1, so filtration, complete back-up system and might not use. Might look at seasonal
  - 1. City of Chicago adds 3.65 mill/lbs P—lot of lead pipes, could help with replacing those pipes
    - a. At what point cut off protective layer for housing
    - b. When get to that removal—try convincing populace
    - c. Unintended consequences

- vi. We all want to do what cheapest and best—if 0.3 won't get us there now, but what if it may over the next 20 years? If we set as a goal—problem of setting a technology based standard, need to address that little bit—but need to look at that. How to get the rest of the way? Maybe a longer term goals and technologies that this group won't address.
1. Absolutely won't happen without agriculture getting involved—point source won't get us there on own. We need agriculture at the table, because we've reached the point where we can't hit the target on our own
    - a. True, but would like the point sources and environmental groups to get together and work at a useful solution to agriculture runoff. Look for a better solution than who is stuck with bill
  2. Strategy needs to focus on hypoxia goal. How to address point sources, but how do we also go to local water quality issues and address those?
  3. Should save this discussion for the “other” stakeholder process. Spent ten years trying to identify water quality standard, and we can't establish the relationship of P to aquatic life in Illinois. Hasn't been demonstrated. Not sure we have hit the “other side of the bridge”—narrative technology
  4. What we measure discussion. Element of what to talk about, local water quality, biological
    - a. Can't just talk about biological—need to talk about drinking water, high algal levels, etc.
    - b. These are all designated uses
    - c. Need to look at DO water quality standards. Indicators or performance variables
- vii. What triggers more stringent limits?
1. Exceed local water quality. What are the variables for that?

2. Illinois nutrient reduction strategy needs to show 45% reduction. Science Assessment question: does that 1mg/L get us part of the way there?
  - a. For P, yes, takes care of the Point Source component
3. Feel that point source easier to hit reduction than in agriculture
4. Is a commonality in using a systematic approach, look at factors involved, measure what doing, keep track of it, doing a better job of evaluating streams and knowing what getting out of it. Take these approaches
5. Best way to go after those 9 million lbs., look at where hurting streams the most
  - a. Can use 9 to hit hypoxia goal. But when local water quality force timeline and achievement to address?
6. Equity part—can't expect point source to address all the inputs from agriculture. This is when start talking trading and utility discussion

#### 4. MWRDGC Limits

##### iii. Future Actions

##### iv. Additional Strategic Actions

###### 1. Bio-P Removal

- a. In this context, what is best way to remove P?
- b. Weigh capital vs. operating costs
- c. Seasonal limits, would like to have this discussion: what can do to reduce P, but also what can do to benefit local stream? Add on technologies during the growing season, perhaps?
- d. Some data collection that doesn't occur right now
  - i. Much of how bio-P works is conditioning the system
  - ii. No one arguing easy or just jump in
  - iii. But there are changes to sewage that need to happen to maximize reductions
    1. But how long will the study take?
      - a. two or three years out before renewal
    2. Adjust renewal of permit based on where plants are at for renewal cycle

3. Need pilot testing to know if model is correct. May need 3-5 years. Give some time to make sure it's feasible. Much of this technology is new, so not sure it's going to work
  4. Lots of technological challenges at each site
- e. If P-reduction is to reduce load for hypoxia than annual average is appropriate
- i. But hypoxia isn't only goal, also local water quality
  - ii. And most plants receive limits at initial setting. Doing that to reduce load for hypoxia, other mechanisms to deal with local water quality issues. If permit based on local water quality, then more stringent requirements needed
    1. Monthly and seasonally for local
  - iii. In Spring the N loads kick in. Point source is more even through year. N is spring, P isn't so much
    1. Would seasonal limits increase hypoxia? April, May, June seems most important for N in gulf
    2. P for seasonal generates enforcement issue: continual violation is a permitting matter, standard or not during the year
    3. Chesapeake Bay has annual limits—if it were doable with permitting challenges
    4. Looking longer is helpful, because may not know problem until half way through month. In water bodies upstream of reservoir, should be willing to sacrifice to hit those limits over time. Consider compromise if P is critical issue

## 2. Compliance Options

- a. Funding available for technological additions—so can actually get started
  - i. Cost share—funding with technology
  - ii. If something like a lower interest rate for loan, would that be sufficient?
    1. Load forgiveness or grants
    2. Our budget hasn't changed in 5 years, and is lower than pre-Recession. Councils and boards don't care about Gulf problems. They care about local streams within

reason, but if costs \$40 million to address the problem, they will ignore that, too

3. One of the advantages of each plant doing plant optimization plan, is that they will know number one sources, know analysis, good data collection, and had have tools of grant/loan program
  - a. As have information about plants, i.e. worst actor and a rich plant, can put something into permit, but if a worst actor and no money, can work with them. Even awards are useful
  - b. Carbon footprint—talking about filtration are high in energy use—reduce water loading, greatly increase carbon loading, so what are getting one vs. other. Capital intensive fixes that might result in environmental problems
- v. Measures of Progress Reporting

DRAFT