BEFORE THE ILLINOIS POLLUTION CONTROL BOARD



| | | |
|---|---|---|
| **IN THE MATTER OF:** | ) | |
| | ) | |
| **INTERIM PHOSPHORUS EFFLUENT** | ) | |
| **STANDARD, PROPOSED 35 ILL. ADM.** | ) | **R04-26** |
| **CODE 304.123 (G-K)** | ) | **(Rulemaking-Water)** |
| | ) | |
| | ) | |
| | ) | |

## NOTICE OF FILING

**TO:** SEE ATTACHED SERVICE LIST.

PLEASE TAKE NOTICE that on Tuesday, September 28, 2004, we filed the attached **Written Testimony of Richard Lanyon and the Metropolitan Water Reclamation District of Greater Chicago** with the Clerk of the Pollution Control Board, a copy of which is herewith served upon you.

METROPOLITAN WATER RECLAMATION
DISTRICT OF GREATER CHICAGO

BY: Ronald M Hill
Michael G. Rosenberg, its Attorney

Michael G. Rosenberg/Ronald M. Hill
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District of Greater Chicago
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CERTIFICATE OF SERVICE

I, Jacqueline Smith, being duly sworn on oath, certify that I caused a copy of the attached **Written Testimony of Richard Lanyon and the Metropolitan Water Reclamation District of Greater Chicago** to be sent via first class U.S. Mail to the individuals identified on the attached service list their addresses as shown, with proper postage prepaid, from 100 E. Erie Street, Chicago, Illinois, at or near the hour of 4:00 p.m., this 28 day of September, 2004.

Jacqueline Smith

**SUBSCRIBED and SWORN to before me this 28th day of September, 2004.**

Rosalie Bottari
**Notary Public**

"OFFICIAL SEAL"
Rosalie Bottari
Notary Public, State of Illinois
My Commission Exp. 04/10/2006

RH:me

| Party Name | Role | City & State | Phone/Fax |
|---|---|---|---|
| IEPA<br>**Petitioner** | 1021 North Grand Avenue East<br>P.O. Box 19276<br>Sanjay K. Sofat, Assistant Counsel | Springfield<br>IL 62794-9276 | 217/782-5544<br>217/782-9807 |
| Gardner Carton & Douglas<br>**Interested Party** | 191 N. Wacker Drive<br>Suite 3700<br>Roy M. Harsch | Chicago<br>IL 60606-1698 | 312/569/1000<br>312/569-3000 |
| Office of the Attorney General<br>**Interested Party** | Environmental Bureau<br>100 West Randolph Street,<br>11th Floor<br>Matthew J. Dunn, Chief | Chicago<br>IL 60601 | 312/814-2550<br>312/814-2347 |
| Illinois Environmental Regulatory Group<br>**Interested Party** | 3150 Roland Avenue<br>Robert A. Messina, General Counsel | Springfield<br>IL 62703 | 217/523-4942<br>217/523-4948 |
| Environmental Law and Policy Center<br>**Interested Party** | 35 East Wacker Drive<br>Suite 1300<br>Albert F. Ettinger | Chicago<br>IL 60601 | 312/673-6500<br>312/795-3730 |
| Wilkie & McMahon<br>**Interested Party** | 8 East Main Street<br>John McMahon | Champaign<br>IL 61820 | 217/359-2115<br>217/359-2754 |
| Department of Natural Resources<br>**Interested Party** | One Natural Resources Way<br>Jonathan Furr | Springfield<br>IL 62702-1271 | 217/782-1809<br>217/524-9640 |
| MWRDGC<br>**Interested Party** | 100 E. Erie<br>Richard Lanyon, Director of Research & Development | Chicago<br>IL 60611 | |
| Aurora University<br>**Interested Party** | 347 Gladstone Avenue<br>David Horn, Asst. Prof., Biology | Aurora<br>IL 60506 | |
| City of Plano<br>**Interested Party** | 17 E. Main Street<br>Darin Boyer | Plano<br>Il 60545-1521 | |

Total number of participants: 10

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

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| IN THE MATTER OF: | ) | |
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| INTERIM PHOSPHORUS EFFLUENT STANDARD, PROPOSED 35 ILL. ADM. 304.123(G-K) | ) | R04-26 (Rulemaking-Water) |
| | ) | |
| | ) | |
| | ) | |

WRITTEN TESTIMONY OF RICHARD LANYON AND THE METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

My name is Richard Lanyon. I am currently employed by the Metropolitan Water Reclamation District of Greater Chicago ("District") as its Director of Research & Development. The District is a unit of local government created by the state legislature for the purpose of collecting and disposing of sewerage, reducing pollution of the waterways and preventing flooding. 70 ILCS 2605/1, *et seq.* The District's service area is most of Cook County. In its capacity as a water reclamation district, the District operates seven treatment facilities in its service area, serves five million residents and treats an average of 1.4 billion gallons of sewage daily.

I have been the District's Director of R&D since 1999. As Director of Research & Development, I supervise the District's Research & Development Department, which has a staff of 340. Prior to becoming Director of Research & Development, I was the Assistant Director of Research & Development. I held this position from 1975 until 1999. I have been employed by the District since 1963.

I received both Bachelors and Masters of Civil Engineering degrees from the University of Illinois at Urbana-Champaign ("UIUC"). I received the American Society of Civil Engineer's National Government Civil Engineer of the Year Award in 1999 and

Distinguished Alumnus of the Department of Civil and Environmental Engineering at the UIUC in 2003. I am also a past President of the Illinois Section of the American Society of Civil Engineers ("ASCE") and have been involved in a variety of technical activities for ASCE, the Water Environment Federation and the Association of Metropolitan Sewerage Agencies.

My responsibilities as the District's Director of Research & Development include, but are not limited to, to the following:

- Control of commercial and industrial waste discharges to the District's sewers and the waterways via the Sewage and Waste Control Ordinance;
- Recovery of certain District operating, maintenance and replacement costs via administration of the User Charge Ordinance;
- Providing analytical laboratory support for the control of commercial and industrial wastes and for control of treatment and other operations;
- Monitoring the environmental quality of Lake Michigan and area waterways; and
- Conducting basic and applied research on new wastewater and sludge treatment processes.

IEPA Proposal

The IEPA has proposed that the IPCB adopt an interim phosphorus standard for General Use waters and requirements for compliance with the interim standard. I submit this statement on behalf of the District in opposition to the IEPA's May 14, 2004, Notice of Filing and Statement of Reasons ("Statement"). Our opposition is based on the following comments:

On the bottom of Page 7 of the Statement and continuing on Page 8, the IEPA discusses the "shortage of sound scientific information available to examine relationships

between nutrient concentrations, biological parameters, and dissolved oxygen in the receiving waters." IEPA also discusses the document (labeled Exhibit A) that presents IEPA's approach for developing numeric nutrient standards. On Page 4 of Exhibit A at the top of the page, IEPA states that "The Illinois Plan for Adoption of Nutrient Water Quality Standards (Plan) was submitted to USEPA on August 14, 2003 and was one of the first plans in the nation to have received "mutually agreed upon" status from USEPA." This plan, which USEPA agreed to, does not call for the promulgation of any interim effluent phosphorus standards in Illinois. It clearly states that more scientific study is needed before numeric standards can be recommended. Therefore there is no pressing need for the IEPA to rush into promulgating interim effluent phosphorus standards, and to do so actually contradicts the IEPA submittal to USEPA.

On page 9 of the Statement, the paragraph beginning at the bottom and continuing through page 10 cites a wide variety of phosphorus inputs to the environment, demonstrating how complex the control of this nutrient can be. IEPA's proposal ultimately places the responsibility for control solely on certain point source dischargers of phosphorus, thereby discriminating against these dischargers by ignoring the significant phosphorus contributions of nonpoint dischargers.

In the paragraph that begins on the bottom of page 10, IEPA discusses eutrophication and the adverse environmental impact of these phenomena. The paragraph closes on page 11, with the following statement: "Some research has indicated that phosphorus concentrations above 0.1 mg/l can result in excessive algal growth affecting municipal, industrial recreational uses in North American fresh water environments." IEPA bases this claim upon a 25 year old Canadian sourcebook and guide for water quality in North American waters. This is not

research, but simply guidance that is over 25 years old, and IEPA has waited until now to act on it. Further, the IEPA fails to cite any specific algal growth problems in Illinois lakes or rivers that affects uses and that can be attributed to excess phosphorus.

In the second sentence of the second paragraph on page 11, IEPA indicates that a certain level of phosphorus in lakes and streams is "...necessary to ensure desirable biological activity..." but higher levels are detrimental. IEPA goes on to define the classic approach of phosphorus management as one that determines the upper limit of beneficial nutrient concentration. However, IEPA fails to determine the phosphorus concentration at which the change occurs from desirable to detrimental.

The last paragraph beginning on page 11 and continuing on page 12 discusses current phosphorus numeric and narrative standards and cites the current General Use dissolved oxygen standard. IEPA fails to cite any evidence that deficiencies in dissolved oxygen concentrations in Illinois lakes or rivers are the result of excessive phosphorus concentrations.

On page 12, second paragraph, second sentence, IEPA states "The scientific relationships between algal concentrations, phosphorus concentrations, and other variables that influence and control plant growth rates, species composition, and chemical dynamics in an aquatic environment are complex and currently insufficiently understood." IEPA continues to explain their current effort to conduct a comprehensive multi-year nutrient standards development program. This program is fully explained in Exhibit A attached to the IEPA Statement of Reasons. Thus, IEPA not only admits to a lack of adequate science upon which to base the proposed interim standard, but also is unwilling to even wait for the results of the scientific studies which they are sponsoring. There is no scientific basis for the proposed phosphorus standard of 1.0 mg/L. IEPA's proposal is arbitrary and capricious.

IEPA states in the second paragraph on page 12 that the current narrative standard provides no practical guidance in establishing preventative or protective limits. IEPA claims that the interim standard will provide needed guidance while it awaits the completion of the multi-year program. With the potential scientific basis for a justifiable and defensible phosphorus standard but a few years away, there is no justification for an interim limit that IEPA cannot demonstrate is needed and has no scientific basis.

On page 13, IEPA reveals its actual motive in seeking adoption of an interim limit now rather than waiting until data exists to adopt a scientific based limit. IEPA claims that the interim limit is needed to forestall further delay and litigation over pending permits that may be, in part, related to the need for a phosphorus limit. IEPA is asking the IPCB to adopt unscientific and unsound standards in an effort to rectify the IEPA's permit backlog. A permit backlog can be remedied by other means, but not by implementation of a standard that has no basis in science.

In Section IV on page 13, IEPA cites the increasing usage of phosphorus compounds for corrosion control in potable water supply systems. Thus at the same time that the IEPA is seeking to place a burden upon POTWs for removal of phosphorus, it is also requiring the use of a corrosion inhibitor by potable water suppliers with high metal concentrations in their distribution network. A phosphorus compound is the most popular corrosion inhibitor. Phosphorus used for corrosion control eventually flows into the POTW. IEPA does not indicate any relief for this burden that ultimately falls upon the ratepayer and/or taxpayer, that is, to pay for both the addition of and removal of phosphorus. A more practical and direct solution would be for the IEPA to initiate a program to replace the offending metal plumbing

systems that are susceptible to corrosion, thereby eventually removing this double burden from the ratepayer and/or taxpayer.

IEPA explains the available technology for removal of phosphorus at POTWs beginning at the top of page 14 and ending on the top of page 15. IEPA does not explain the economic impact on Illinois POTWs to which this proposed rule would apply, or explain what environmental benefits will results from the proposed interim phosphorus controls. The reference cited by IEPA, Exhibit G, estimates a significant capital and operating cost for the removal of nitrogen and phosphorus by Illinois POTWs, but does not identify the cost of phosphorus removal alone. In this day and age of scarce public resources, POTWs should not be required to expend significant amounts of public money to meet a standard that has no scientific basis, and has no proven benefit to the environment.

Phosphorus Contributions to POTWs

As explained by IEPA, there are a number of sources of phosphorus, in addition to human waste, which are discharged into the influent sewage to POTWs. Among these sources are residential and commercial automatic dishwasher detergents (ADWDs), which still contain appreciable amounts of phosphorus. The Minnesota Pollution Control Agency commissioned a detailed study of the sources of phosphorus to Minnesota POTWs and watersheds. The results of the Minnesota study have been useful for the estimation of phosphorus sources, especially ADWDs, to the District's water reclamation plants (WRPs).

The Minnesota Pollution Control Agency had a legislative mandate requiring a comprehensive study of phosphorus contributions to POTWs and Minnesota surface waters. A report entitled, "Detailed Assessment of Phosphorus Sources to Minnesota Watersheds," prepared by Barr Engineering Company, was completed in February 2004. (See Ex. 1)

Volume 2 of the report, entitled *Point Sources Technical Memorandum, February 16, 2004,* includes an estimate of various phosphorus sources discharged to POTWs in Minnesota. The sources included residential ADWDs, commercial/institutional ADWDs, water treatment chemicals, food soils/garbage disposal waste, dentifrices, as well as commercial/industrial process wastewater.

The estimated contributions to the Minnesota POTWs from the various sources in terms of percent total phosphorus load to the POTWs statewide are as follows:

| | |
|---|---|
| Residential ADWD | 7.3% |
| Commercial/Institutional ADWD | 3.4% |
| Dentifrices | 1.0% |
| Food Soils/ Garbage Disposals | 16.2% |
| Commercial/Industrial Process Wastewater | 26.5% |
| Water Treatment Chemicals | 3.1% |
| Inflow and Infiltration | 0.1% |

These sources accounted for 57.6% of the total phosphorus load to the Minnesota POTWs. The remaining 42.4% of the phosphorus load was attributed to human waste.

The contribution of ADWDs was based upon the 2000 reported amount of phosphorus used for ADWD formulation in the United States, from the Stanford Research Institute (SRI) publication Chemical Economics Handbook - Industrial Phosphates, and the estimated U. S. population for the year 2000 (approximately 281,422,000). This data was used to calculate a per capita per year ADWD phosphorus usage in Minnesota. Then the per capita values were applied to the population served by the POTWs. The following are the per capita phosphorus values estimated in the Minnesota study, for ADWDs:

| | |
|---|---|
| Residential ADWDs | 0.085 Kg/person/year |
| Commercial/Industrial ADWDs | 0.04 Kg/person/year |

Using the per capita values from the Minnesota report (0.085 kg/person/yr or 0.187 lbs/person/yr), an overall estimate of the phosphorus load from ADWDs in Cook County has been made. The 2002 population for Cook County was reported by the Census Bureau as 5,283,888. This value does not include persons living in institutions such as hospitals or college dormitories. The following estimates were made.

Residential ADWD is 449,131 Kg phosphorus/yr (494 tons/yr)

Commercial/Institutional ADWD is 211,355 Kg phosphorus/yr (232 tons/yr)

The combined total phosphorus load to the District's WRPs, based upon 2003 average influent phosphorus concentrations and average daily flows, is 63,748 lbs/day, or 11,634 tons/yr as shown in the following Table. Thus, the phosphorus contribution to the District WRPs influent phosphorus load is 4.24% for residential ADWD and 2.0% for commercial/ institutional ADWD. These are broad-based estimates since we do not have data as to ADWD usage specifically for Cook County. However, it is clear from the above information that a ban on phosphorus in ADWDs in Illinois could be a more effective approach to achieving immediate phosphorus reductions in POTW effluents than enacting the limited scope of POTW effluent limits proposed by the IEPA.

AVERAGE DAILY PHOSPHORUS LOADINGS TO DISTRICT WRPs - 2003

| WRP | Influent Phosphorus mg/L | Flow MGD | Total Phosphorus Loading lbs/day |
|---|---|---|---|
| North Side | 3.39 | 238 | 6,733 |
| Calumet | 6.64 | 246 | 13,631 |
| Kirie | 4.57 | 31.64 | 1,207 |
| Egan | 6.91 | 21.8 | 1,257 |
| Hanover Park | 6.16 | 7.49 | 385 |
| Lemont | 5.01 | 2.12 | 89 |
| West Side | 3.54 | 335 | 9,896 |
| Southwest | 10.43 | 351 | 30,550 |
| Total | | | 63,748 |

Note: 63,748 lbs/day = 11,634 tons/yr.

Agricultural Sources of Phosphorus are Significant

While focusing on POTWs as significant sources of phosphorus, IEPA ignores the fact that agricultural drainage and runoff are also a significant source. The lack of control of this source will result in continued water quality problems. This source is not due to entirely natural causes, but results from the excess use of fertilizer containing phosphorus and other nutrients. In the year 2000, a study reported in the Journal of Soil and Water Conservation found that farmers in Wisconsin over-apply nutrients. (See Ex. 2) As reported, on average, farmers applied an excess of 83 Kg/ha (74 lb/ac) of phosphorus beyond University of Wisconsin recommendations for growing corn. In addition, it was found that the simple promotion of best management practices will not guarantee water quality protection and/or improvement. This study is reported in the Journal of Soil and Water Conservation, First Quarter 2000, pages 63 through 68, *Nitrogen and phosphorus management on Wisconsin*

*farms: Lessons learned for agricultural water quality programs,* by R. Shepard. Undoubtedly, farming practices in Illinois are similar to those in Wisconsin. Even modest reductions in overuse of agricultural fertilizers would have a far larger effect on reducing the phosphorus levels in Illinois streams, than adoption of the current IEPA proposal.

Large concentrated animal feeding operations (CAFOs) have been long identified as major sources of excess agricultural phosphorus that is discharged into surface waters in the United States. The contribution of CAFOs to excess agricultural phosphorus in the environment is discussed on pages 36 and 37 in a bulletin titled *Plant Nutrient Use in North American Agriculture*, published in 2002 by the Potash and Phosphate Institute. (See Ex. 3) In Appendix 6.3 of this bulletin, on pages 112 and 113, it is reported that in the state of Illinois, CAFOs generate about 27 million pounds of excess phosphorus pentoxide ($P_2O_5$) annually, which is equivalent to 12 million pounds of phosphorus. This excess phosphorus is prone to over application on the farms where it is generated and potentially lost through runoff and drainage. Appendix 6.3 of the report also shows that besides the excess phosphorus generated by CAFOs, unconfined animals on Illinois farms excrete about 67 million pounds of $P_2O_5$ annually, which is equivalent to 29 million pounds of phosphorus. This is calculated by the difference between the total amount of manure phosphorus excreted by all farm animals (162 million pounds of $P_2O_5$) and the total excreted by CAFOs (95 million pounds of $P_2O_5$). This excess phosphorus can contribute to agricultural phosphorus runoff if it is not accounted for in farm nutrient management plans.

The IEPA has apparently embraced these findings, but does not inform the IPCB of this matter in their proposal. On July 14, 2004, IEPA issued a news release titled "ILLINOIS EPA WILL IMPLEMENT ADVISORY GROUP RECOMMENDATIONS Pilot Projects in

Rock River Basin will demonstrate comprehensive watershed planning." (See Ex. 4) The press release states " 'Governor Rod Blagojevich asked the Illinois EPA to work with a broad range of interests and to rethink how we can protect our vital water resources, which are essential to both our quality of life and economic well-being, and I want to thank the B-MAG members for their vital work,' said Illinois EPA Director Renee Cipriano." The B-MAG is a stakeholder group from a broad range of interests that assisted the IEPA in reaching consensus on the Facility Planning Issue.

One of the B-MAG recommendations (VII.C.1) reads as follows: "IEPA should embark on a process that utilizes existing resources to develop a statewide watershed management approach to protecting and preserving water quality in the seven major basins across Illinois." (See Ex. 5) The news release indicated that pilot projects would occur for the Green and Kishwaukee River watersheds in the Rock River Basin. Agricultural nonpoint sources of nutrients are dominant in these two watersheds. The IEPA should inform the IPCB and others how this new initiative will solve water quality problems caused by phosphorus and other nutrients and use this initiative as the basis for a statewide plan for the control of nutrient discharges.

Phosphorus Not the Only Nutrient of Concern

IEPA correctly points out in their Statement of Reasons that nitrogen is also a nutrient of concern and that federal water quality criteria has also been published for nitrogen. Dodds, Smith and Lohman (Canadian Journal of Fisheries and Aquatic Sciences, Vol. 59, pp. 865-874, 2002) note that "Although the occurrence of Nitrogen (N) limitation in streams is inconsistent with the early view that Phosphorus (P) is generally the primary limiting factor in inland freshwaters, experimental nutrient enrichment bioassays have confirmed N limitation

in a variety of different stream ecosystems. The data reveal a significant N-P interaction in streams and suggest that it is necessary to consider both N and P as potentially limiting nutrients for periphyton biomass accrual in lotic systems." Statistical techniques established significant breakpoints of about 30 μg total P per liter and 40 μg total N per liter, above which mean benthic chlorophyll values were substantially higher. Thus it is questionable whether an interim effluent phosphorus limit of 1.0 mg/L , by itself, would have any noticeable impact on Illinois streams.

However, IEPA does not explain that there has also been a significant amount of federal study of the problem of hypoxia in the Gulf of Mexico. In January 2001, the report of the Mississippi River/Gulf of Mexico Watershed Nutrient Task Force identified nitrogen as the cause of hypoxia in the Gulf. (See Ex. 6) This report also stated the need to reduce the contribution of nitrogen to the Gulf by 30 percent to reduce the areal extent of hypoxia. Illinois is identified as a significant contributor of nitrogen to the Gulf because of the point and nonpoint sources of nitrogen in the state.

In another news release dated June 30, 2004, Governor Blagojevich identified farm nutrient runoff as a cause of hypoxia in the Gulf. (See Ex. 7) This release, titled *Gov. Blagojevich joins Mississippi River Water Quality Initiative,* expressed the Governor's disappointment at not being able to join the Governors of Minnesota and Wisconsin on June 30 in LaCrosse, Wisconsin, to pledge continuing commitment to protect and improve the Mississippi River.

In the news release, Governor Blagojevich states: "While I will not be able to be there in person, in spirit I join my fellow Upper Mississippi Valley Governors in our commitment to continuing to protect and improve the great river that first brought settlers and commerce to

our region. Recently, at my request, the Illinois Environmental Protection Agency proposed new limits on phosphorus discharges for most new and expanding wastewater treatment plants and last fall I nominated the Mississippi River segment that borders Illinois and Missouri for the federal Watershed Initiative Program to help reduce farm chemical runoff into the Mississippi River."

The news release continues "Governor Blagojevich said he has requested nearly $1.3 million in federal funding for innovative programs to help address 'Gulf Hypoxia' - a condition caused by farm [fertilizer] runoff that has been blamed for killing off aquatic life in a large and growing area in the Gulf of Mexico."

Because Governor Blagojevich has joined with the Governors of Minnesota and Wisconsin in this commitment, it is helpful to know what these two Governors have committed to do. A news release issued jointly by both Governors dated June 30, 2004, includes the following:

- Focus on meeting the two states' shared responsibility of nutrient and sediment reduction, including making progress on the multi-state plan to reduce nitrogen discharges into the Gulf of Mexico by 30 percent by 2015;
- Expand the partnership beyond Minnesota and Wisconsin to also include the other three states in the Upper Mississippi River basin: Iowa, Illinois, and Missouri;

(See Ex. 8)

We bring this matter to the attention of the Board because there have been significant discussions with IEPA, USEPA Office of Water, and USEPA Region V Division of Water regarding the use of constructed and restored wetlands in Illinois to reduce the concentrations of nitrogen and phosphorus in the Illinois River Basin. These discussions were initiated by several members of the Illinois Association of Wastewater Agencies (IAWA), including the District, and The Wetlands Initiative (TWI), a not-for-profit corporation in Chicago. The

discussions have also included other not-for-profit environmental advocacy organizations. The TWI and the several members of IAWA, including the District, have proposed a comprehensive research program involving several Midwestern universities, including the University of Illinois, and the Argonne National Laboratory to demonstrate the effectiveness of large-scale constructed or restored wetlands in removing nutrients.

The use of wetland technology to control the contribution of nitrogen and phosphorus was not mentioned by IEPA, but it should be included as a viable control technology. The use of this technology would serve to control the discharge of nitrogen and phosphorus in Illinois waters as well as to reduce the contribution of nitrogen to the Gulf by the State of Illinois. The use of this technology brings other benefits as well, such as, reduced demand on non-renewable energy, reduced demand on treatment process chemicals, increased wildlife habitat, reduced flood damages and biodiversity. (See Ex. 9)

The use of wetland technology for point and nonpoint sources can be integrated with the use of conventional treatment technology by POTWs in a watershed. To create a useful planning tool for the use of these two technologies, the District recently submitted a project preproposal to the Water Environment Research Foundation, IAWA and Illinois Water Resource Center. (See Ex. 10) The project will involve the University of Illinois to develop the planning tool under contract to the District and under the oversight of a project steering committee including the IAWA, IEPA, Region V, other departments of federal and state government and other interested parties.

Effective control of nutrients in watersheds will also require some form of water quality trading to create incentives for trading between point and nonpoint sources of these nutrients. Recognizing this need, EPA adopted a Water Quality Trading Policy on January 13,

2003. (See Ex. 11) Water quality trading programs have been successfully tested and demonstrated in other states. Already, trading is an effective tool in attaining air emission reductions in Illinois. Water quality trading will be an effective component in the development of nutrient standards in Illinois where it can be shown that trading within upstream watershed areas will not contravene water quality standards and will be effective in controlling nutrients from point and nonpoint sources impacting downstream areas. This policy has received much support nationwide. Recently, the National Association of Counties adopted a resolution on July 18, 2004, in support of the EPA Water Quality Trading Policy. (See Ex. 12)

The use of wetland technology for nutrient management on a watershed scale would provide a cost-effective technology to control nutrients from both point and nonpoint sources in a watershed. It would not place the entire burden for nutrient control solely on the POTWs. Several IAWA members, including the District, are willing to proceed with this technology only if the IEPA creates a mechanism for it to be recognized with the current body of rules. It is extremely important for the POTWs that the burden for control of nitrogen and phosphorus be equitable, therefore a means must be found to reduce the contribution of these nutrients from nonpoint, as well as point sources.

There are significant efforts underway in neighboring states to address the discharge of nitrogen in the Mississippi River Basin. As mentioned above, the Governors of Minnesota and Wisconsin have agreed on mutual efforts to control the discharge of nitrogen. Iowa has been funding the construction of wetlands in agricultural areas in watersheds tributary to the Mississippi River to reduce the discharge of nitrogen. The states in the Ohio River Basin have begun a voluntary effort to address the discharge of nitrogen. However, only about 15

percent of the area of Illinois is in the Ohio River Basin. It appears that Illinois is behind its neighboring states in controlling the discharge of nitrogen.

Illinois representation in the Ohio River Basin initiative includes the IEPA and Department of Agriculture. Region V is also represented. With this Illinois participation in the Ohio River Basin, the commitment to join Minnesota and Wisconsin in the nitrogen reduction initiative and the work underway in Iowa, it is remarkable that the IEPA, faced with the mountain of evidence regarding Gulf hypoxia, has not shown any inclination to address the reduction of nitrogen from point and nonpoint sources. Instead, IEPA proposes a rulemaking for phosphorus that is lacking scientific foundation and is discriminatory in its application to certain POTWs.

The District recommends that until the IEPA develops (1) a plan for statewide control of nitrogen discharges to meet the desired 30 percent reduction target for nitrogen and (2) a watershed water quality trading program, an allowance be granted for those dischargers who wish to voluntarily participate in nitrogen reduction efforts through participation in the creation or restoration of treatment wetlands in the watershed in which the discharger is located. The District proposes such an allowance.

District's Findings Related to Phosphorus

The District has three plants that discharge to General Use waters. The effluent monthly average total phosphorus (TP) concentrations range from 0.17 to 4.45 mg/L for the 2000 through 2003 period. Individual plant data is as follows:

| Plant Name | 2000 through 2003 Range in Average Effluent Concentrations - mg/L | | |
|---|---|---|---|
| | Monthly Maximum | Monthly Average | Monthly Minimum |
| Egan | 3.51 to 4.45 | 2.82 to 3.71 | 2.19 to 2.85 |
| Hanover Park | 3.33 to 3.86 | 2.66 to 3.20 | 2.04 to 2.40 |
| Kirie | 1.13 to 1.75 | 0.65 to 0.95 | 0.17 to 0.42 |

The 2003 annual average and monthly grab sample maximum and minimum TP concentrations in the receiving streams downstream of the outfalls for these plants are as follows:

| Plant | Receiving Stream | TP stream concentration in mg/L | | |
|---|---|---|---|---|
| | | Average annual | Maximum | Minimum |
| Egan | Salt Creek | 2.02 | 5.30 | 0.23 |
| Hanover Park | West Branch DuPage River | 2.37 | 4.14 | 0.60 |
| Kirie | Willow-Higgins Creek | 0.43 | 1.38 | 0.12 |

As can be seen above, there is considerable variability in effluent and stream TP concentrations. However, at this point neither the District nor the IEPA has been able to correlate the varying stream TP concentrations with differences in attainable uses or the general biological health of these waterways. Therefore, if this proposed interim effluent standard were to be applied to one of these WRPs some day, there is no certainty of any environmental gain being achieved, or of even knowing how to assess if the change in effluent phosphorus levels even significantly effected in-stream phosphorus levels.

MWRDGC attempted to determine if industrial contributors were a significant source of phosphorus. Based on our review of plant influent loadings and regulated industrial contributor loadings for 2002, we determined that the industrial phosphorus loading that could be controlled through local pretreatment limits varied from zero to three percent of the influent loading at six of the District's seven plants. The variation is detailed as follows:

| Plant | Flow | Raw Influent Sewage Phosphorus | | Industrial Loading | Industrial Contribution |
|---|---|---|---|---|---|
| | mgd | Concentration mg/L | Loading pounds/day | pounds/day | percent |
| Plants discharging to General Use waters | | | | | |
| Egan | 24 | 7.3 | 1,440 | 5.8 | 0.4 |
| Hanover Park | 8 | 5.7 | 390 | 0.2 | 0.0 |
| Kirie | 33 | 4.6 | 1,290 | 38.8 | 3.0 |
| Plants discharging to Secondary Contact waters | | | | | |
| Calumet | 237 | 7.7 | 15,300 | 149.0 | 1.0 |
| North Side | 250 | 3.5 | 7,380 | 66.6 | 0.9 |
| Stickney | 691 | 6.6 | 38,200 | 971.0 | 2.5 |

There is no significant industrial phosphorus loading at the Lemont WRP.

Most of the phosphorus in raw sewage results from human waste and residential uses of products containing phosphorus. As explained earlier, although phosphorus is no longer used in residential laundry detergents, it is used in ADWD, dentifrice products and commercial and industrial cleaning products. IEPA should consider controlling phosphorus at its source by banning some of these products that contain phosphorus. Such controls would remove far more pounds of phosphorus from Illinois waters than the current IEPA proposal.

For example, IEPA should consider a ban on the use of phosphorus in fertilizers for residential use. It is noted that Minnesota Governor Tim Pawlenty signed on May 10, 2004 a law (Minnesota House File No. 2005, 83rd Legislative Session) that bans the use of fertilizer containing phosphorus on turf. The ban will become effective on January 1, 2005 and applies to fertilizer to be used on turf that is purchased at retail after August 1, 2004. The ban prohibits the application to turf of phosphorus-containing fertilizer on property unless (i) a soil test indicates that phosphorus is needed, (ii) the application is for the first turf growing season and (iii) the property is a golf course. (See Ex. 13) It would appear that such a statewide ban would eliminate more phosphorus in Illinois waters than the limited approach taken by the IEPA.

District's Suggestions for Measures to Control Phosphorus

The District has proposed to the IEPA, transmitted by letter dated April 27, 2004, to conduct a demonstration project at its Egan Water Reclamation Plant (WRP) in Schaumburg to determine if phosphorus removal would show any impact or improvement in Salt Creek downstream of the plant outfall. (See Ex. 14) The proposed project includes comprehensive monitoring of Salt Creek upstream and downstream of the Egan WRP outfall. The monitoring program will be coordinated with downstream dischargers to Salt Creek in DuPage County and must be approved by the IEPA. The IEPA has indicated an interest in proceeding with this and other similar initiatives at other POTWs to develop a scientific basis to demonstrate whether or not justification for a phosphorus standard exists. The Region V Division of Water has also shown support for the District's proposed demonstration project. The District's monitoring results and conclusions will be prepared in a scientific report available to the public. Should the report demonstrate that phosphorus causes impairment, it will support the need for a water quality based effluent limit.

If the results of this demonstration project show that the removal of phosphorus will have a beneficial effect on Salt Creek, then the IEPA will modify the District's NPDES permit for the Egan WRP by incorporating a water quality based effluent limit for phosphorus.

District's Recommendation on the IEPA Interim Phosphorus Proposal

The District requests that the IPCB deny the entire proposed interim limit as described in the IEPA petition for Section 304.123 (g) through (j). In the event the IPCB deems it advisable to adopt regulations at this time, it is recommended that the IPCB adopt the following requirements:

1. The IEPA shall, upon a demonstration by a scientifically sound receiving stream monitoring program that existing phosphorus loadings are causing or increased phosphorus loadings will cause impairments, petition the Board for a site-specific phosphorus standard for the waterway segment impacted by a proposed new or increased phosphorus discharger prior to issuing a new permit for said discharger.
2. Any applicant for a permit to discharge additional phosphorus loadings to a receiving stream that is identified as phosphorus impaired, shall include controls to limit phosphorus discharges to a water quality based effluent limit based on an appropriate water quality phosphorus standard.
3. A point source discharger that participates in a dedicated wetland creation or restoration project in the same watershed as the discharger is located, shall receive credit for the nutrients removed by the project as if the nutrients were removed at the outfall of the discharger, provided that the amount of credit received is proportional to the monetary participation of the discharger in the nutrient removal portion of the total project cost.

Respectfully submitted,

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