

MINUTES

SEWRPC ADVISORY COMMITTEE ON REGIONAL WATER QUALITY MANAGEMENT PLAN UPDATE FOR THE GREATER MILWAUKEE WATERSHEDS

DATE: January 31, 2007

TIME: 1:30 p.m.

PLACE: City of Mequon City Hall
Upper Level Council Chambers
11333 N. Cedarburg Road
Mequon, Wisconsin

Committee Members Present

Daniel S. Schmidt, Chairman
Michael G. Hahn, Secretary

Julie A. Anderson
Martin A. Aquino
(for Jeffrey J. Mantes)
John R. Behrens

Thomas J. Bunker
Sharon L. Gayan
(for James L. McNelly)
Andrew A. Holschbach

Judy Jooss (for Diane M. Georgetta)
William A. Kappel
Kristine M. Krause
Shirley Krug
(for Kevin L. Shafer)
James F. Lubner

J. Scott Mathie
(for Matthew Moroney)
Charles S. Melching

Cheryl Nenn
Dean Perlick (for Joyce Fiacco)
Stephen Polonsik
(for Peter G. Swenson)
Thomas A. Wiza

SEWRPC Commissioner
Chief Environmental Engineer, Southeastern
Wisconsin Regional Planning Commission
Director, Racine County Division of Planning and Development
Environmental Manager, Environmental Engineering,
City of Milwaukee
Commissioner-Secretary, Silver Lake Protection and
Rehabilitation District
General Manager, City of Racine Water and Wastewater Utility
Basin Supervisor, Wisconsin Department of Natural Resources
Director, Ozaukee County Planning, Resources,
and Land Management Department
Town and Country Resource Conservation and Development, Inc.
Director of Public Works, City of Wauwatosa
Vice-President, Environmental Department, We Energies
Watershed Planning Manager, Milwaukee Metropolitan
Sewerage District
Sea Grant Advisory Services Specialist,
University of Wisconsin Sea Grant Institute
Director of Government Affairs, Metropolitan Builders
Association of Greater Milwaukee
Associate Professor, Civil & Environmental
Engineering, Marquette University
Riverkeeper/Project Director, Friends of Milwaukee's Rivers
Manager of Planning, Dodge County
Senior Staff Engineer, U.S. Environmental Protection Agency
Director of Engineering and Public Works, City of Cedarburg

Staff Members and Guests

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|----------------------|--|
| Don Behm | Environmental Reporter, Milwaukee Journal-Sentinel |
| Joseph E. Boxhorn | Senior Planner, Southeastern Wisconsin Regional Planning Commission |
| Marsha B. Burzynski | Regional Water Resources Planner, Wisconsin Department |
| Troy E. Deibert | Water Resources Engineer, HNTB Corporation |
| Gail Epping Overholt | Milwaukee River Basin Educator, University of Wisconsin-Extension |
| Ronald J. Printz | Principal Engineer, Southeastern Wisconsin Regional Planning Commission |
| Thomas M. Slawski | Principal Planner, Southeastern Wisconsin Regional Planning Commission |

WELCOME AND INTRODUCTIONS

Mr. Schmidt thanked the Advisory Committee members for attending this meeting. He indicated that roll call would be accomplished with a sign-in sheet circulated by SEWRPC staff.

APPROVAL OF MINUTES OF THE MEETING OF DECEMBER 14, 2006

Mr. Schmidt asked if there were any additions or revisions to be made to the minutes of the December 14, 2006, meeting of the Committee.

Mr. Boxhorn noted that in Exhibit D, Table K-3, for fecal coliform bacteria during the May through September period, under Alternative C-2, the mean geometric mean should be 77 instead of 75 and the median geometric mean should be 94 instead of 78.

There being no further additions or revisions, the minutes were approved as revised, on a motion by Mr. Behrens, seconded by Ms. Krug, and carried unanimously.

**CONSIDERATION OF THE PRELIMINARY DRAFT OF THE “INTRODUCTION,”
“LAND USE PLAN ELEMENT,” AND “SURFACE WATER QUALITY PLAN ELEMENTS,”
SECTIONS OF CHAPTER X, “RECOMMENDED WATER QUALITY MANAGEMENT
PLAN,” OF SEWRPC PLANNING REPORT NO. 50 (PR NO. 50), A REGIONAL WATER
QUALITY MANAGEMENT PLAN UPDATE FOR THE GREATER MILWAUKEE WATERSHEDS**

Mr. Schmidt asked Mr. Hahn to review the preliminary draft of the chapter.

Mr. Hahn began by summarizing the introduction to the chapter.

Mr. Melching said that it was difficult to distinguish between the “recreational” and “woodland” land use categories on land use Maps X-1 through X-7.

Ms. Jooss said that the MMSD planning area boundary was not shown in the legends of the maps in the chapter. Mr. Hahn noted that the boundary was labeled directly on the map, but he said that it would be moved to the legend. Mr. Lubner said that the MMSD planning area boundary was not shown on Map X-2 (Kinnickinnic River watershed). Mr. Hahn replied that the boundary was not shown on the land use maps for the Kinnickinnic River watershed and the Oak Creek watershed because they are wholly contained within the planning area. Ms. Nenn said that the boundary line ends short of the map limits in the southwest corner of Map X-3 which shows land use in the Menomonee River watershed. Mr. Lubner said that Map X-7, showing land use in the Lake Michigan direct drainage area, was difficult to read.

[Secretary's Note: Maps X-1 through X-7 were revised to better distinguish between the colors for the "recreational" and "woodland" categories and to add "MMSD 2020 Planning Area" to the legend and remove the same note from the maps. Because of issues related to map layout, Map X-3 was not changed. Map X-7 was changed to an 11-inch by 17-inch map.]

Ms. Jooss asked that the third sentence in the third paragraph on page 8 be revised.

[Secretary's Note: The third sentence in the third paragraph on page 8 was revised as follows. (In this Secretary's Note, and in subsequent Notes, revised and added text is indicated in bold letters for clarification only. The report text will not be bold.)

"Under the recommended land use plan, the limited incremental rural density residential **development** was allocated to rural areas not comprised of farmland with U.S. Natural Resources Conservation Service agricultural capability Class I and Class II soils."]

Mr. Melching asked if the Village of Sturtevant should be included in footnote 9 on page 10. Mr. Hahn said that it should be included.

[Secretary's Note: Footnote 9 on page 10 was revised as follows:

*"⁹This planning effort is being conducted by Earth Tech, Inc. for the Village of Caledonia in cooperation with the Racine Water and Wastewater Utility, the Villages of Mt. Pleasant and Sturtevant, the Towns of Raymond and Yorkville, and SEWRPC. **The study is documented in the report entitled Village of Caledonia IH 94 Sewer Service Area Trunk Sewer Analysis, February 2007.** The study is a refinement and update of a portion of the plan set forth in the 1992 Alvord, Burdick & Howson report entitled A Coordinated Sanitary Sewer and Water Supply System Plan for the Greater Racine Area.]*

Regarding the Wet Weather Control Plan subsection on page 12, Mr. Bunker inquired as to how the Milwaukee Metropolitan Sewerage District (MMSD) established the five-year level of protection against sanitary sewer overflows (SSOs). Mr. Hahn replied that 1) MMSD based the five-year level of protection on continuous simulation modeling of its conveyance system to determine the number of SSOs over the 64.5-year simulation period, and 2) under recommended plan conditions those overflows averaged out to one for every five years of simulation. He also noted that MMSD had modeled other levels of protection and found that the anticipated difference in instream and in-lake water quality was not significant.

Mr. Poloncsik asked that the text explain the difference between the five-year level of protection approach adopted by the MMSD and the five-year storm criterion listed in Chapter NR 110.

[Secretary's Note: In light of Mr. Poloncsik's comments, and upon further consideration, the Commission staff decided that the reference to a five-year rainfall event in the third full paragraph of the Wet Weather Control Plan subsection on page 12 was confusing and did not help to better explain SSO levels of protection. Thus, it was decided to delete the first sentence in that paragraph and to move the second sentence to the end of the second paragraph in that subsection.]

Mr. Lubner asked that "not feasible" be substituted for "infeasible" in the first sentence of the third paragraph on page 12.

[Secretary's Note: That revision was made.]

Mr. Wiza asked if the addition of physical chemical treatment at the South Shore plant involves adding polymers to promote flocculation. Mr. Printz replied that one option calls for adding fine sand to promote flocculation and another option would be to promote flocculation through the addition of chemicals.

Ms. Krug noted that MMSD had decided to no longer refer to “physical/chemical/innovative (PCI) treatment,” and asked that that term be replaced with the term “physical-chemical treatment.”

[Secretary’s Note: The term ‘physical/chemical/innovative (PCI) treatment’ was replaced with “physical-chemical treatment” in the fourth paragraph on page 13, and at all other occurrences in the chapter.]

Mr. Lubner noted that the first sentence in the fourth paragraph on page 15 did not read correctly.

[Secretary’s Note: That sentence was revised to read:

“The WWPFMP should establish peak wet weather flow standards for each municipality served by MMSD and incorporate activities that will serve to keep I/I from growing beyond current levels.”]

Mr. Bunker said that the recommendation in the first bulleted item on page 17 to evaluate whether the size of the aeration system at the Jones Island WWTP can be reduced through the installation of smaller blowers and new diffusers in the aeration basins is contradictory to recommendations to continue blending at Jones Island. He said that blending should only occur after wet weather capacity is being used to the fullest extent, and that installing smaller blowers could reduce wet weather treatment capacity. He suggested adding text to indicate that any reductions in the size of the aeration system should be accomplished without reducing the wet weather capacity of the Jones Island WWTP.

[Secretary’s Note: The Commission staff is considering this issue and will report back to the Committee on March 20, 2007.]

Regarding the Biosolids Plan subsection on page 17, Mr. Lubner asked what “filter cake” was, and how it is disposed of. Ms. Krug replied that if the nitrogen content of sludge is too low for Milorganite production, the dried sludge, or filter cake, is placed in a landfill. Mr. Bunker added that the sludge may also be landspread.

Ms. Krug noted that MMSD was still considering options regarding biosolids management and Ms. Krause suggested that the biosolids issue be revisited when the MMSD 2020 facilities plan recommendation is final.

[Secretary’s Note: Following the Committee meeting, the MMSD facilities plan biosolids program recommendation was completed. To reflect the facilities plan recommendation, the last paragraph on page 17 was deleted and replaced with the following paragraph:

“The recommended MMSD facilities plan calls for continuing existing biosolids operations during the period from 2007 through 2008, or beyond if necessary for the preparation of additional analyses needed to assess biosolids options. The facilities plan recommends that the following analyses be conducted during the assessment period:

- An evaluation of the Milorganite® nitrogen balance using data from 2006 and beyond on the wasteloads from the Jones Island and South Shore plants,

- A study to address marketing Milorganite® with a nitrogen content less than the currently guaranteed 6 percent,⁴⁵ and
- An overall assessment report on energy, energy management, and power supply/power generation (energy costs are a significant percentage of the costs to process biosolids).

Following completion of the preceding recommended analyses, the MMSD facilities plan recommends developing a final biosolids plan through modification and reevaluation of the following alternatives:

- Glass furnace technology,
- Sell Milorganite® with less than 6 percent nitrogen,
- Sell Milorganite® with 6 percent nitrogen and land apply the rest,
- Combination of Milorganite® and glass furnace technology, and
- Combination of Milorganite® and landfill.

The MMSD facilities plan also recommends specific facilities and operational improvements needed to continue the current biosolids program during the interim evaluation. Those improvements are described in Chapter 9 of the MMSD Treatment Report. The estimated costs for the biosolids plan component are set forth in Table X-2.

⁴⁵The recent loss of the wasteload from Le Saffre Yeast has resulted in decreases in the nitrogen content of Milorganite®.”]

Mr. Lubner said that the last sentence of the first paragraph on page 18 did not read correctly.

[Secretary’s Note: That sentence was deleted and replaced with the following:

“The watercourse management plans identify existing and possible future flooding problems, and they recommend structural and nonstructural measures to abate those problems. Many of those measures have been, or are being, implemented by MMSD. Implementation of the conservation plan and of the Chapter 13 rule complements the recommended flood reduction measures and will help to reduce the risk of future flooding.”]

Mr. Melching questioned including the provision of flood control along Underwood Creek in the last bulleted item on page 18. Mr. Hahn replied that, because of the diversion of higher flows from Underwood Creek into the Milwaukee County Grounds detention basin, peak flood flows and flood stages would be reduced along the reach of Underwood Creek downstream of the diversion at USH 45. This would provide flood control benefits at several properties on Fisher Parkway along Underwood Creek. Mr. Melching then asked that the extent of the benefit along Underwood Creek be clarified.

[Secretary’s Note: The following footnote was added at the end of the last bulleted item on page 18:

“Because of the diversion of higher flow from Underwood Creek into the Milwaukee County Grounds detention basin, peak flood flows and flood stages would be reduced along the reach of Underwood Creek downstream of the diversion at USH 45. This would

provide flood control benefits at several properties on Fisher Parkway along Underwood Creek near its confluence with the Menomonee River.”]

Ms. Nenn asked that the recommendation for continued blending at the Jones Island WWTP, as stated on page 21, include reference to the blending rules that are being developed by the U.S. Environmental Protection Agency.

[Secretary’s Note: The following footnote was added at the end of the third sentence of the first bulleted item on page 21:

“The approval process for wet weather blending at wastewater treatment plants serving combined sewer systems, such as the Jones Island plant, is outlined in the April 19, 1994, U.S. Environmental Protection Agency (USEPA) Combined Sewer Overflow Policy (59 Federal Register, 18693-18694). As noted in Chapter VI of this report, entitled “Legal Structures Affecting the Regional Water Quality Management Plan Update,” on December 19, 2005, the USEPA issued a draft policy regarding blending at publicly owned wastewater treatment plants serving separate sanitary sewer systems. That policy does not apply to the Jones Island plant, which serves a combined sewer system.”]

Mr. Bunker asked that the second sentence in the first bulleted item on page 21, regarding blending be revised.

[Secretary’s Note: The Commission staff decided to also revise the first sentence of the first bulleted item on page 21 to recognize one of the main reasons for blending. In response to Mr. Bunker’s suggestion, the second sentence in the first bulleted item on page 21 was revised as well.

“Blending is the practice of diverting wastewater flows around secondary treatment during peak wet weather events, **in an effort to avoid significant damage to biological treatment units and loss of treatment capability**. The diverted flows are then normally recombined with flows from the **fully utilized** secondary treatment units for further treatment, **including disinfection**, prior to discharge.”]

Mr. Melching said that it is inconsistent that on page 21, there is a statement that “no costs are assigned (to skimmer boat operations) under the recommended water quality management plan,” however, costs were assigned to skimmer boat operation in the alternative plans set forth in Chapter IX of the report. Mr. Hahn responded that the costs of ongoing, committed operations or programs that are currently funded, such as skimmer boat operation, would not be assigned to the recommended plan. He also noted that deleting the skimmer boat cost from the alternative plans would not affect the evaluation of the costs of the various alternatives. Mr. Hahn suggested that a table be added quantifying the costs of those recommended measures that are funded from ongoing programs or are recommended under other plans, and Mr. Melching agreed with that approach.

[Secretary’s Note: A table listing the costs of ongoing, funded measures and programs and of measures initially recommended in other plans will be prepared by the SEWRPC staff and included in Chapter X.]

Mr. Hahn noted that the subsection on wastewater treatment options for the City of South Milwaukee was being prepared and would be provided to the Committee for review at a later meeting.

Ms. Gayan asked whether the Kettle Moraine Correctional Institution wastewater treatment plant discharged to surface water or groundwater. Mr. Boxhorn replied that he thought it discharged to groundwater, but he would check that.

[Secretary’s Note: The Kettle Moraine Correctional Institution plant discharges to groundwater. The following footnote was added at the end of the second sentence in the **Private Wastewater Treatment Facilities** subsection on page 22:

“The Kettle Moraine Correctional Institution plant discharges to groundwater of the Watercress Creek subbasin within the East Branch Milwaukee River subwatershed.”]

Regarding the subsection on *Barnyard Runoff* on page 25, Ms. Gayan said that Ms Burzynski would provide revisions to the text addressing the prohibitions related to manure.

[Secretary’s Note: Additional comments on the Chapter NR 151 agricultural performance standards and prohibitions were received from WDNR staff following the meeting. Ms. Gayan’s comment, and the additional staff comments, are addressed below in the section of these minutes related to post-meeting WDNR comments.]

Mr. Mueller asked that the third sentence in the third full paragraph on page 25 be revised to recognize that the Washington County development setback requirements only apply to unincorporated areas.

[Secretary’s Note: The following revision was made to that sentence:

“Washington County has adopted a minimum 75-foot setback for all development **in unincorporated areas** adjacent to lakes and streams as part of its stream classification program and related zoning.”]

Mr. Holschbach said that it would be helpful if the report indicated the effectiveness at the local or county level of individual nonpoint source control measures, including riparian buffers, and, he said, he believes there should be a Committee meeting to review the state-of-the-art report. Mr. Hahn replied that it is not possible to present specific information on the local impact of individual measures because, by design, the plan is developed based on a watershed-based model that analyzes systems of control measures applied throughout the study area. He went on to mention that the state-of-the-art report presents information regarding the effectiveness of measures that was used as a guide in selecting measures to be included in the recommended plan. Mr. Printz added that, in some instances, the pollutant load reductions for several measures were lumped in the model, making it impossible to separate out the individual effects of those measures. Mr. Deibert said that the preliminary draft state-of-the-art report can be accessed on the MMSD website and he noted that Chapter 4 of that report deals with best management practices.

[Secretary’s Note: As documented at the bottom of page 10 in the minutes of the December 14, 2006, meeting, the Sensitivity Analyses of Urban and Rural Best Management Practices subsection of Chapter IX, of this report, entitled “Development of Alternative Plans: Description and Evaluation,” has now been revised to indicate buffer effectiveness based on updated information provided by the consultant team. This responds to one aspect of the comments by Mr. Holschbach regarding establishing the effect of individual measures at a more local level (in this case at the level of the West Branch of the Root River Canal subwatershed). The second-last sentence of the last paragraph of that subsection was revised to read as follows:

“It was found that expanding current buffer widths could reduce loads of total suspended solids, total phosphorus, and total nitrogen from agricultural lands by about 20 percent.”

That 20 percent represents the total reduction in loads from the subwatershed, not the reduction from only those lands treated by the buffer. A 75 percent level of control of total suspended solids, fecal coliform, and nutrients from the land tributary to buffers was applied in the water quality model.

The sensitivity analyses described in Chapter IX were specifically designed to provide information on the cost-effectiveness of individual nonpoint source control measures that were identified as potentially being among the most effective during the modeling process

leading up to development of the recommended plan. Because the subwatershed/watershed analysis structure is the most logical for analyzing the water quality effects of interrelated control measures on the very complex natural and man-made system, isolation of individual effects is only possible in the manner that was applied in the sensitivity analyses or in the more generalized, "typical case" approach taken in the state-of-the art report.

As documented in the minutes of the December 14, 2006, Advisory Committee meeting, at that time Mr. Hahn offered to schedule a special meeting at which the state-of-the-art report would be presented to the Committee. In response to the comments from Mr. Holschbach, Chapter 4 of the state-of-the-art report will be reviewed at a special meeting of any interested Committee members. That meeting has been scheduled for March 14, 2007, from 1:30 to 3:30 p.m. at the SEWRPC offices.]

Ms. Gayan inquired as to whether the recommended 75-foot buffer width was applicable only to navigable waterways. Mr. Slawski responded that the inventory of existing buffer conditions, which was used to develop the scope of the recommendation, extended to first order streams and included all stream that are discernible on the SEWRPC/County digital orthophotographs. He said that it is likely that many of the lower order streams are not designated as being navigable.

Mr. Melching said that, given the wide range of literature values on riparian buffer effectiveness, it is important that the report document the decision process that led to the adoption of buffer effectiveness assumptions for modeling.

[Secretary's Note: The Commission staff will prepare additional documentation of the process followed to estimate buffer effectiveness for modeling purposes and will include it in the chapter and provide it to the Committee for review at a future meeting.]

Mr. Mueller offered the opinion that many of the preceding questions raised by the Committee are directed toward issues related to implementation of the plan. He noted that similar questions were raised at the last meeting and may not yet have been adequately addressed. He said that the recommended plan chapter 1) lists the recommendations as if each one were equally important, and 2) does not set out clear priorities for implementation of the recommendations. He stated that priorities need to be established, the need for, and effectiveness of, recommended measures must be justified, and regulatory issues must be clarified. He noted that prioritization and justification of the recommendations would be key to local acceptance of the plan and local efforts to implement the plan. Mr. Hahn replied that Mr. Mueller's points were well taken, and he said that much of what Mr. Mueller identified would be included in the upcoming plan implementation chapter. Mr. Hahn noted that in past Commission water resource planning efforts plan recommendations have been categorized as low-, medium-, or high-priority, and he said such an approach may also be appropriate in the plan implementation chapter of this report.

[Secretary's Note: The minutes of the December 14, 2006, Committee meeting either directly respond to the questions raised at that meeting, or commit the Commission staff to further investigation of certain issues that were raised. Thus, in that respect, the questions raised have been addressed to the degree possible at this time and are intended to be addressed to the satisfaction of the Committee members.

The comments of the Committee members in general, and Mr. Mueller in specific, will be given serious consideration when the implementation chapter is drafted.

To clarify issues related to plan implementation and the prioritization of recommendations, the following subsection was added on page 4 after the subsection entitled **Approaches to Developing the Recommended Plan**:

“Considerations Related to Plan Implementation and Prioritization of Recommendations

This chapter presents a detailed description of the recommended water quality management plan. Issues related to plan implementation are addressed in Chapter XI of this report. That chapter:

- Prioritizes the plan recommendations,
- Recommends ways to fund implementation of the plan,
- Identifies the entities responsible for implementing recommendations, and
- Establishes a proposed institutional framework for implementing the plan.”]

Mr. Hahn stated that the plan recommends the conversion of 10 percent of the existing cropland and pasture in the study area to wetlands and prairies, with a focus on converting marginally productive lands. Mr. Poloncsik said that Map X-10 shows highly productive farmland covered by Natural Resources Conservation Service (NRCS) Class I and Class II soils. He asked if the number of acres to be converted and the cost of conversion could be quantified and if marginally productive farmland could be mapped. Mr. Hahn responded that identification of marginally productive cropland might be done during second level planning, but the Commission staff would investigate whether a map could reliably be developed. He also said that the areas to be converted would be quantified in developing estimated costs that would be presented at a later Committee meeting.

[Secretary’s Note: The following sentence was added after the first sentence of the subsection entitled *Conversion of Cropland and Pasture to Wetlands and Prairies* on page 26:

“The recommended conversion of agricultural land would result in the creation of about 46 square miles (29,500 acres) of wetlands and prairies and a corresponding reduction in agricultural land.”

A footnote was added to Table X-1 after the “Agricultural and Related” category stating:

“Full implementation of the plan recommendation to convert 10 percent of cropland and pasture to wetlands and prairies would result in the total land area in this category being reduced by about 29,500 acres, and a corresponding increase in the combined area of wetlands and other open land.”

Map X-10 was revised to show agricultural lands other than NRCS Class I and Class II lands. The revised map is attached as Exhibit A.

In addition, the last partial paragraph on page 26 was revised as follows:

“Consistent with the land use planning principle and standard set forth in Appendix VII-1 of this report which encourages efforts to restore farmland and other open space land to more natural conditions, such as wetlands, prairies, grasslands, and forest, it is recommended that a total of 10 percent of existing farmland and pasture be converted to either wetland or prairie conditions, **focusing that effort on marginally productive land. Ten percent of the existing farmland and pasture represents an area of about 47.5 square miles. As shown on Map X-10, agricultural lands other than those highly productive lands designated as Class I and Class II lands by the U.S. Natural Resources Conservation Service cover an area of about 143.8 square miles. Those lands could be given first consideration when identifying more marginally productive lands to be converted to wetlands or prairies.** The benefits of ...”

For clarification, the last sentence in the second full paragraph on page 25 of PR No. 50 Chapter IX, "Development of Alternative Plans: Description and Evaluation," was revised in a manner similar to the first sentence of the preceding paragraph of these minutes.]

The review of the subsection entitled *Programs to Detect Illicit Discharges to the Storm Sewer System and to Install Stormwater Disinfection Units at Selected Storm Sewer Outfalls* elicited considerable comment from the Committee. Mr. Melching asked that the last paragraph on page 29 be revised to include a step calling for testing for human-specific bacteria, prior to installing stormwater disinfection units.

Mr. Bunker made the following points regarding the proposed recommended program to reduce pathogens:

- Steady state flow is required for ultraviolet disinfection. In order to achieve those conditions for stormwater runoff, runoff storage facilities to slowly release stormwater may need to be provided.
- What is the human risk for nonhuman fecal coliform? A risk assessment is needed.
- The provision of ultraviolet disinfection units to treat stormwater runoff would be very expensive and the cost could be beyond the ability of municipalities to fund.
- A lot of money could be spent to kill a broad range of fecal coliform that might not have a health impact.
- The recommended approach would impose end-of-pipe standards on stormwater runoff, rather than the instream water quality approach that is intended to be applied.
- He would not recommend implementing ultraviolet disinfection based on the preceding objections and unknown factors.

Mr. Hahn asked the Committee if they knew of any treatment alternatives to stormwater disinfection. None was mentioned by the Committee. He also noted that a major objective of the plan was to meet regulatory water use objectives and the supporting standards and criteria to the degree practicable and that the recommended approach to addressing bacteria in stormwater runoff called for stormwater disinfection as a last resort.

Ms. Nenn said that the step in the recommended procedure that calls for determining whether the bacteria were from a human source would address Mr. Bunker's contention that money would be spent to kill fecal coliform bacteria that might not have an impact on human health.

Mr. Bunker said that the WDNR has not established instream water quality standards for fecal coliform bacteria. Mr. Hahn replied that such standards are established under the *Administrative Code*, and this observation was supported by Ms. Gayan and Ms. Burzynski.

Ms. Krug mentioned that the recent MMSD Honey Creek study (July-August 2006 "Honey Creek Bacteria Investigation Survey") identified high fecal coliform bacteria loads in discharges from storm sewer outfalls and also included additional testing that determined that human-sourced bacteria were often present in those discharges. She said that the most cost-effective option for dealing with bacteria is not yet known.

Ms. Gayan noted that the WDNR is in the process of developing a Phase 1 WPDES permit for the City of West Allis and Wisconsin State Fair Park. She said that the permit will have stronger than normal requirements for detection of illicit discharges and for treating stormwater runoff onsite. She concluded that it would be up to the community to decide what best management practices to use to adequately treat stormwater runoff to meet the permit requirements.

Mr. Aquino said that the City of Milwaukee will have difficulty supporting the draft recommendation for stormwater disinfection because capital and operation and maintenance costs for end-of-pipe treatment of stormwater discharges would be very high and the benefits to human health are unclear.

Ms. Krug stated that it appears that, while WDNR can impose restrictions on communities related to illicit discharges, the Department would not specify means of meeting the permit requirements. Ms. Krug concluded that it might be better for the recommended water quality management plan to let the communities decide how to achieve the intended level of control of bacteria and pathogens.

In response to the preceding comments, Mr. Hahn stated the following:

- Disinfection units could be suggested as only one option to control bacteria, although there do not appear to be many other viable options in cases where the illicit discharge detection process does not identify bacteria from human sources,
- The Commission staff is open to Committee suggestions regarding other options,
- Evaluation of the situation, including consideration of the modeling results, indicates that just meeting the Chapter NR 151 urban requirements would not provide sufficient control of bacteria (and associated pathogens),
- The Commission staff is constrained by the need to meet the water quality standards to the degree practicable, thus, the plan needs to include measures intended to attain that goal, and
- As far as assessing the risk to human health from bacteria in the streams of the study area, the step-by-step process for detecting and eliminating illicit discharges that are the source of human-specific bacteria, as set forth on page 30, is a way of focusing efforts on controlling those bacteria that would be most harmful to human health.

Mr. Melching said that the logic breaks down because the model results show no real water quality improvements as a result of the recommended approach to controlling urban sources of bacteria. Mr. Hahn replied that that is not the case because the cost analyses have not yet been completed, and, once those are available, it will be possible to decide whether the limited improvement in water quality justifies the estimated level of expenditure necessary to achieve that improvement.

Mr. Aquino suggested that, if fecal coliform bacteria are found, then the illicit connections contributing those bacteria should be eliminated without testing for human-specific strains of *Bacteroides* as called for under the recommended procedure set forth on page 30. Mr. Hahn responded that the intent of the test for human-specific strains of *Bacteroides* was to eliminate nonhuman sources from consideration and to focus on sources that would be more harmful to human health.

Ms. Burzynski said that the work of Sandra McLellan from the GREAT Lakes Water Institute indicates that the presence of human-specific strains of *Bacteroides* is a relatively good indicator of a risk to human health.

Mr. Melching asked if Ms. McLellan's field work had found storm sewer outfalls with negative *Bacteroides* results. Ms. Nenn said that she thought that negative results were found at some outfalls and that the Honey Creek subwatershed was selected for the recent MMSD bacteria study based on Ms. McLellan's screening tests of outfalls in locations within and outside the Honey Creek subwatershed. Mr. Hahn said that the Commission staff would look into this issue.

[Secretary's Note: Data for the MMSD service area as set forth in Volume 3 of the "Bacteria Source, Transport and Fate Study-Phase 1," prepared for MMSD in 2005 by the University of Wisconsin-Milwaukee Great Lakes WATER Institute show that at six of 17 stormwater

monitoring sites in the MMSD service area no human-specific *Bacteroides* were detected during either of two sampling times.]

Mr. Hahn reiterated the need to address compliance with water quality standards and criteria. Ms. Krug mentioned that applying wet weather water quality standards could address the issue of not meeting the fecal coliform standard and that such an approach would be consistent with the concerns of most people related to the swimmable aspect of the Clean Water Act requirements. Mr. Hahn said that, since the disinfection units would be intended to provide control of bacteria during wet weather conditions and that certain Committee members were expressing reservations about stormwater disinfection, wet weather standards would be worth considering.

[Secretary's Note: As a result of the discussion on disinfection units and the illicit discharge detection recommendation, the pertinent subsection on pages 29 and 30 was revised. The revised subsection is set forth in the attached Exhibit B.]

Mr. Hahn suggested that the chapter review through the end of the subsection on detection of illicit discharges be concluded and that, at the next meeting, the Committee begin with review of the *Chloride Reduction Programs* subsection. The Committee concurred.

Mr. Hahn concluded by noting that:

- The draft chapter includes a complete description of the components that are common to the regulatory watershed-based approach and to the integrated watershed-based approach,
- The section describing the unique aspects of the integrated approach would be provided for the next meeting, and that section would consider the possibility of blending at the South Shore wastewater treatment plant,
- The cost analysis would be prepared and presented at the next meeting,
- The section on the evaluation of the ability of the recommended plan to meet water use objectives would be completed and presented at the next meeting. Figures X-1 through X-6 from that section were distributed to those in attendance prior to the meeting. Those figures include graphs that indicate the degree of compliance with regulatory or planning water quality standards for various pollutants, based on model results, and
- A preliminary draft SEWRPC memorandum describing the "extreme measures" condition was distributed to the Committee at the meeting.

Mr. Behrens asked why Figures X-1 through X-6 do not include data for the Milwaukee River watershed. Mr. Hahn replied that that information and the data for the nearshore Lake Michigan area were not yet available, but would be provided in the future.

OLD BUSINESS

There was no old business.

NEW BUSINESS

Mr. Schmidt noted that Mr. Mathie had distributed a notice regarding a Job-Site Regulatory Compliance Conference to be held on February 22, 2007. Conference topics include erosion control, grading, stormwater management, land disturbance, and job-site sequencing.

COMMENTS ON CHAPTER X, OF SEWRPC PLANNING REPORT NO. 50 AS PROVIDED BY MR. THOMAS J. BUNKER, FOLLOWING THE COMMITTEE MEETING

Mr. Bunker sent the letter attached as Exhibit C, which reiterates, and expands upon, some of the comments that he made regarding stormwater disinfection at the January 31, 2007, meeting.

The following is the Commission staff's reply to the points made in Mr. Bunker's letter:

- Third Paragraph: Mr. Bunker's points are well taken. The Commission staff was aware of all of these issues, and it has always been our intent that the section of Chapter X of PR No. 50 that sets forth the evaluation of the ability of the recommended plan to meet water use objectives would include information on the limitations of the use of fecal coliform bacteria as an indicator. That information is will be in the preliminary draft of that section that will be provided to the Committee for review at the March 20, 2007, meeting.
- Fourth Paragraph: The illicit discharge detection and elimination procedure recommended on page 30 of Chapter X addresses the issue of using a better indicator by proposing additional testing of stormwater discharges for human-specific *Bacteroides*.
- Fifth Paragraph: Mr. Bunker draws an appropriate distinction between the definite occurrence of pathogens in combined sewer overflows (CSOs) and the less well-defined occurrence of such pathogens in stormwater runoff and reiterates the fact that the mere presence of fecal coliform in stormwater runoff does not indicate a threat to human health. Technical Report No. 39, which has been reviewed by the Advisory Committee, includes detailed information on estimated fecal coliform loads from point sources, (including CSOs, sanitary sewer overflows, and wastewater treatment plants) and urban and rural nonpoint sources. That information indicates that loads of bacteria from nonpoint sources are considerably larger than from point sources. Although the portion of those nonpoint source loads that may be comprised of pathogens harmful to human health is unknown, it is known that certain pathogens, such as *Cryptosporidium*, *Giardia*, and *Salmonella*, that may also be contained in stormwater runoff can be harmful to human health. Thus, pathogens in stormwater runoff should also be addressed by the recommended plan.
- Seventh Paragraph: Once again, Mr. Bunker's points are well taken and the Commission staff was aware of these issues. These issues, along with that of the cost of disinfection units, are a main reason why the preliminary draft of Chapter X recommended an approach to minimize the use of stormwater disinfection units and also recommends a pilot study to test unit operating characteristics.
- Eighth Paragraph: The Commission staff was also aware of the relatively large cost of disinfection units and that entered into the decision to minimize the use of such units as described in Chapter X. Because the cost analysis section of Chapter X was not included in the draft provided for Committee review, an evaluation of disinfection unit costs, or for that matter, the cost of other recommended plan components, relative to the water quality benefit achieved through implementation of those measures, was not yet fully explored at the time of the January 31, 2007, Committee meeting.

In summary, Mr. Bunker's comments were helpful in framing the issues to be addressed relative to stormwater disinfection. The Commission staff had always planned on addressing many of these issues in the sections of chapter that related to plan costs and the effectiveness of the plan in meeting water quality standards. Those report sections were written following the January 31, 2007, Committee meeting and will be presented to the Committee for review at the March 20, 2007, meeting.

EDITS AND REVISIONS TO CHAPTER X, OF SEWRPC PLANNING REPORT NO. 50 AS SUGGESTED BY MS. ANDERSON, MR. BEHRENS, MS. JOOSS, MS. KRUG, AND MR. MELCHING AFTER THE COMMITTEE MEETING

Ms. Krug suggested revisions to the text as indicated in the following Secretary's Note:

[Secretary's Note: The second paragraph in the Wet Weather Control Plan subsection on page 12 was revised as follows:

“As noted in Chapter VI, “Legal Structures Affecting the Regional Water Quality Management Plan Update,” and Chapter IX, “Development of Alternative Plans: Description and Evaluation,” of this planning report, sanitary sewer overflows are prohibited under the Clean Water Act (CWA) and under the WPDES discharge permits for MMSD facilities and the other wastewater treatment facilities in the study area; however, **current Federal and State regulations acknowledge** that it is **not** feasible to prevent SSOs at all times and under all circumstances. Therefore, **those** regulations **require** the regulators to include “exceptional circumstances” language in permits. As noted in Chapter IX, current WPDES permits include language explicitly stating that SSOs are not authorized. The WPDES permits also include language that provides defenses where no feasible alternatives to SSOs were available **or** when SSOs occurred in order to prevent severe property damage or loss of life or personal injury. To meet regulatory requirements, the 2020 MMSD facilities plan proposes to provide a five-year level of control of SSOs.”

The first sentence in the fifth paragraph in the Wet Weather Control Plan subsection on page 12 was revised as follows:

“The volumetric capture performance standard is less restrictive than the event-based regulation due to the specific formulation of the terms of the performance standard.”

All references to “physical/chemical/innovative (PCI)” treatment were changed to “physical-chemical” treatment.]

Mr. Behrens noted that third sentence of the third full paragraph on page 25 should refer to the Washington County “**lake and** stream classification program”

[Secretary's Note: That revision was made.]

Ms. Anderson asked that the *Expanded Oversight and Maintenance of Private Onsite Wastewater Treatment Systems (POWTS)* subsection be revised to address Racine County's concerns regarding taking on oversight of POWTS that were in place prior to County adoption of a POWTS maintenance program.

[Secretary's Note: Based on Ms. Anderson's comment and past comments from Mr. Mueller, representing Washington County, and Mr. Holschbach, representing Ozaukee County, it appears that there is some disagreement among county planning directors regarding regulation of POWTS that were in place prior to County adoption of a maintenance program. The following revisions to the subsection attempt to address the differences of opinion, while maintaining the effectiveness of the plan recommendation:

“Expanded Oversight and Maintenance of Private Onsite Wastewater Treatment Systems (POWTS)

The Technical Advisory Committee guiding the regional water quality management planning process identified improved oversight and maintenance of POWTS as a priority that should be addressed to improve groundwater and surface water quality.⁴⁶ The rural

nonpoint source sensitivity analysis described in Chapter IX indicated that such a program could be an effective component of the overall water quality plan. **Therefore, it is recommended that, at a minimum, county-enforced inspection and maintenance programs be implemented for all new or replacement POWTS constructed after the date on which the counties adopted private sewage system programs. It is also recommended that voluntary county programs be instituted to inventory and inspect POWTS that were constructed prior to the dates on which the counties adopted private sewage system programs.**^{47,48} The implementation of such a program was represented in the water quality modeling analyses as a 10 percent reduction in fecal coliform and nutrient loads from POWTS. The benefits of those reductions are reflected in the water quality results set forth in Appendix M.

⁴⁶*The level of oversight of POWTS varies throughout the study area. Ozaukee County inspects all POWTS every three years and the systems are generally pumped out following those inspections. In other counties, the oversight is not as stringent. Chapters VI through X of SEWRPC Technical Report No. 39 provide descriptions of the level of oversight of POWTS in the Menomonee, Milwaukee, and Root River watersheds, the Oak Creek watershed, and the Lake Michigan direct drainage area.*

⁴⁷*See Chapter XI of this report for information regarding possible administrative frameworks for management of POWTS and for funding inventory, inspection, and maintenance programs, including the possible establishment of Town Utility Districts.*

⁴⁸*There is some disagreement over whether or not counties should assume responsibility for retroactive inventory and enforced maintenance of all POWTS. The Wisconsin County Code Administrators (WCCA)-Southeast District is opposed to the idea of making counties responsible for a mandated maintenance program for POWTS constructed prior to the county adoption of a private sewage system program (typically around 1980) due to the added expense and burden to run the program in the absence of any current Federal or State cost-share funding.”]*

Mr. Melching pointed out several typographical errors and suggested some editorial improvements to the text. The chapter was revised accordingly.

Ms Jooss asked that the correct table reference be provided in the “Notes” on Maps M-1 through M-6 in Appendix M, “Water Quality Summary Statistics for the Recommended Plan.”

[Secretary’s Note: The “Note” on those maps was revised to refer to Table IX-2.]

Regarding the first bulleted item of the **Provide Adequate Depth** subsection on page 2 of Appendix O, Ms. Jooss asked that the term “thalweg” be defined.

[Secretary’s Note: In response to this comment, the following footnote was added after the word “thalweg” in the first bulleted item of that subsection:

“The thalweg is the lowest point of the streambed.”

Appendix O was redesignated as Appendix N, since the first reference in the text occurs after the reference to Appendix M.]

ADDITIONAL REVISIONS TO CHAPTER X OF SEWRPC PLANNING REPORT NO. 50 BASED ON REVIEW BY WDNR STAFF

Subsequent to review of this chapter by the Technical Advisory Committee at its meeting on January 31, 2007, the WDNR staff provided additional comments.

Mr. John Pfender of the WDNR Bureau of Watershed Management noted that Section 151.02 of Chapter NR 151 of the *Wisconsin Administrative Code* calls for cropland to meet the tolerable soil loss “T,” or less, while The Chapter X subsection *Reduction in Soil Erosion from Cropland* on page 24 refers to attaining loss rates equal to “T” on average.

[Secretary’s Note: In response to Mr. Pfender’s comment, the second through fourth sentences in the *Reduction in Soil Erosion from Cropland* subsection were revised to read as follows:

“Also, based on that input, it was determined that it would be reasonable for cropland in the study area to attain soil erosion rates less than or equal to T by 2020. Certain critical areas that were previously identified under the WDNR priority watershed planning program would be targeted to attain soil loss rates below T. Thus, the recommended plan calls for practices to reduce soil loss from cropland to be expanded to attain erosion rates less than or equal to T by 2020.”]

Mr. Pfender asked that a complete listing of performance standards and prohibitions be included in the plan.

[Secretary’s Note: The *Agricultural Performance Standards* subsection on page 19 of PR No. 50 Chapter VI, “Legal Structures Affecting the Regional Water Quality Management Plan Update,” clearly refers to Chapter NR 151 and it lists the practices for which there are performance standards. To address this comment and the previously noted comment by Ms. Gayan, regarding the *Barnyard Runoff* subsection on page 25 of PR No. 50 Chapter X, and to clarify compliance issues related to livestock performance standards, the *Agricultural Performance Standards* subsection on page 19 of PR No. 50 Chapter VI was revised as follows:

Agricultural Performance Standards

Agricultural performance standards cover the following areas:

- Cropland sheet, rill, and wind erosion control,
- Manure storage,
- Clean water diversions, and
- Nutrient management.

The following manure management prohibitions are set forth in Section NR 151.08.

A livestock operation:

- **Shall have no overflow of manure storage facilities,**
- **Shall have no unconfined manure pile in a water quality management area,⁴⁹**
- **Shall have no direct runoff from a feedlot or stored manure into the waters of the State, and**

- **May not allow unlimited access by livestock to waters of the State in a location where high concentrations of animals prevent the maintenance of adequate sod or self-sustaining vegetative cover.⁵⁰**

For existing land that does not meet the NR 151 standards and that was cropped or enrolled in the U.S. Department of Agriculture Conservation Reserve or Conservation Reserve Enhancement Programs as of October 1, 2002, agricultural performance standards are only required to be met if cost-sharing funds are available **or if the best management practices and other corrective measures needed to meet the performance standards do not involve eligible costs.** Existing cropland that met the standards as of October 1, 2002, must continue to meet the standards. New cropland must meet the standards, regardless of whether cost-share funds are available.

For existing livestock facilities that do not meet the NR 151 standards or prohibitions, the performance standards or prohibitions are only required to be met if cost-sharing funds are available or if the best management practices and other corrective measures needed to meet the performance standards or prohibitions do not involve eligible costs. Existing livestock facilities that met the standards as of October 1, 2002, must continue to meet the standards. New livestock facilities must meet the standards, regardless of whether cost-share funds are available.”

The *Barnyard Runoff* subsection on page 25 of PR No. 50 Chapter X, was also revised as follows to address the comments by Ms. Gayan and Mr. Pfender.

Barnyard Runoff

Chapters NR 151 and ATCP 50 have certain provisions that relate to control of barnyard runoff, including those related to manure storage facilities, manure management, and clean water diversions.⁵¹ However, as noted in Chapter VI, of this report, “Legal Structures Affecting the Regional Water Quality Management Plan Update,” because existing operations are excluded from the requirements if cost-share funding is not available and because of the limited amount of such funding that is available annually, many livestock operations are not compelled to comply with *Administrative Code* provisions related to barnyard runoff. **In order to attain a greater level of control of barnyard runoff, it is recommended that consideration be given to increasing levels of cost-share funding to enable a higher level of implementation of the best management practices needed to meet the NR 151 performance standards.**⁵² Because of the relatively scattered nature of smaller-scale livestock operations and the lack of data on the locations of those operations, the benefits of expansion of these practices in reducing bacteria, pathogens, and nutrients delivered to the streams of the study area were not explicitly represented in the water quality modeling analyses.

⁴⁹A water quality management area is defined in Section NR 151.015(24) as “the area within 1,000 feet from the ordinary high water mark of navigable waters that consist of a lake, pond, or flowage, except that, for a navigable water that is a glacial pothole lake, the term means the area within 1,000 feet from the high water mark of the lake; the area within 300 feet from the ordinary high water mark of navigable waters that consist of a river or stream; and a site that is susceptible to groundwater contamination, or that has the potential to be a direct conduit for contamination to reach groundwater.”

⁵⁰**This prohibition does not apply to properly designed, installed, and maintained livestock or farm equipment crossings.**

⁵¹*Additional information on the Chapter NR 151 agricultural performance standards for the control of nonpoint source pollution, including the manure management prohibitions set forth in Section NR 151.08, are presented in Chapter VI, of this report, “Legal Structures Affecting the Regional Water Quality Management Plan Update.”*

⁵²*The mechanism for increasing the level of cost-share funding and maximizing cost-share funding by pooling funds from Federal, State, and local sources is addressed in Chapter XI of this report, “Plan Implementation.”*”]

Mr. Pfender also asked that the plan encourage the coordination of Federal, State, and local funding sources in an effort to make more cost-sharing funds available and, thus, to enable the implementation of more agricultural runoff control and livestock management practices covered under the Chapter NR 151 standards.

[Secretary’s Note: This suggested approach is consistent with the objectives of the regional water quality management plan update, and it will be considered in developing the implementation element of the plan which will be documented in PR No. 50, Chapter XI.]

Mr. Pfender asked that the plan recognize that the State is developing an approach to using vegetated areas to reduce pollutant delivery to State waters and will be proposing appropriate changes to NR 151.

[Secretary’s Note: Existing footnote 45 on page 26 addresses these comments.]

Mr. Pfender requested that a reference to Section NR 151.08 be included in the *Restricting Livestock Access to Streams* subsection on page 27.

[Secretary’s Note: The following footnote was added at the end of the first sentence in the subsection:

“As noted in Chapter VI of this report, Section NR 151.08 of Chapter NR 151 of the *Wisconsin Administrative Code* includes a prohibition on “unlimited access by livestock to waters of the state in a location where high concentrations of animals prevent the maintenance of adequate sod or self-sustaining vegetative cover.”]

ADDITIONAL CLARIFYING REVISIONS TO CHAPTER X OF SEWRPC PLANNING REPORT NO. 50 ADDED BY THE COMMISSION STAFF

At the request of the MMSD staff, from February 12 through 15, 2007, the SEWRPC presented the preliminary draft recommended plan to 1) the MMSD Policy, Finance & Personnel Committee, comprised of MMSD Commissioners; 2) the Intergovernmental Cooperation Council, comprised of the Chief Elected Officials, or their representatives, of the MMSD communities; 3) the Citizens Advisory Committee, convened under the SEWRPC regional water quality management plan update and the MMSD 2020 facilities planning process; and 4) the MMSD Technical Advisory Team, comprised of public works/engineering staff from the MMSD member communities. Following those presentations, the letters attached as Exhibits D and E were received.

[Secretary’s Note: In partial response to those letters and to clarify the relationship of the “integrated watershed-based” approach and the “regulatory watershed-based” approach, references in Chapter X to the “integrated watershed-based plan” and the “regulatory integrated watershed-based plan” were eliminated, substituting “approach” for “plan.” The **Approaches to Developing the Recommended Plan** subsection was revised as follows:

Approaches to Developing the Recommended Plan

Two approaches were considered in developing the recommended water quality management plan for the greater Milwaukee watersheds. The first approach stems from the necessity that the MMSD 2020 facilities plan meet regulatory requirements. That approach

is termed the “Regulatory Watershed-Based **Approach**” (regulatory **approach**). The second approach has its genesis in the finding that because of significant and effective past or committed actions by the operators of wastewater systems and other point source dischargers throughout the study area, additional point source controls would result in no significant improvement in overall instream and in-Lake water quality. That **approach, which** is called the “Integrated Watershed-Based **Approach**,” is predicated on the concepts that if certain, limited components of the MMSD recommended 2020 facilities plan were not implemented 1) there would be a substantial reduction in costs to implement the MMSD facilities plan with no significant change in water quality and 2) the cost savings from elimination of the specific facilities plan components could be applied to nonpoint source pollution control measures that would be more effective in improving instream water quality. **The components of those two approaches are generally the same. The similarities and differences between the two approaches are described in this chapter. A single recommended plan was selected by the committee as set forth later in the chapter.”**

All references in the chapter to the “integrated watershed-based recommended plan” and the “regulatory watershed-based recommended plan” were changed to substitute “approach” for “recommended plan.”]

[Secretary’s Note: The following subsection was added on page 10 immediately before the subsection entitled Implement Local Programs to Ensure Maintenance of Adequate Sewage Collection System Capacity:

“Recommended Intercommunity Trunk Sewers
Map X-11 shows a proposed new intercommunity trunk sewer, designated as the Northwest Interceptor by the City of West Bend, which is anticipated to be constructed in the City and the Town of Barton over the next five years. Map X-11 also shows a recommended force main that would connect urban development in the Waubeka area with the Village of Fredonia sewerage system. That intercommunity trunk sewer was originally recommended in 1979 under the initial regional water quality management plan. The costs for these recommended trunk sewers are set forth in Table X-2.”]

DETERMINATION OF NEXT MEETING DATE AND LOCATION

Based on responses from Committee members following the meeting, the next meeting of the Advisory Committee was scheduled for Tuesday, March 20, 2007, beginning at 1:00 p.m. at the Mequon City Hall in the upstairs Council Chambers. **Please note that the starting time of the meeting is 1:00 p.m.**





ADJOURNMENT

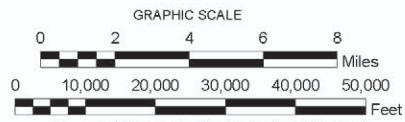
The January 31, 2007, meeting of the Advisory Committee on the regional water quality management plan update was adjourned at 4:00 p.m. on a motion by Mr. Holschbach, seconded by Ms. Nenn and carried unanimously by the Committee.

* * *

EXHIBIT A

Map X-10
AGRICULTURAL LANDS WITHIN
THE REGIONAL WATER QUALITY
MANAGEMENT PLAN UPDATE
STUDY AREA: 2000

-  HIGHLY PRODUCTIVE AGRICULTURAL LAND COVERED BY SOILS IN U.S. NATURAL RESOURCES CONSERVATION SERVICE CAPABILITY CLASS I AND CLASS II
-  OTHER AGRICULTURAL LANDS
-  SURFACE WATER
-  STUDY AREA BOUNDARY



Source: Wisconsin Geological and Natural History Survey and SEWRPC.

PRELIMINARY DRAFT

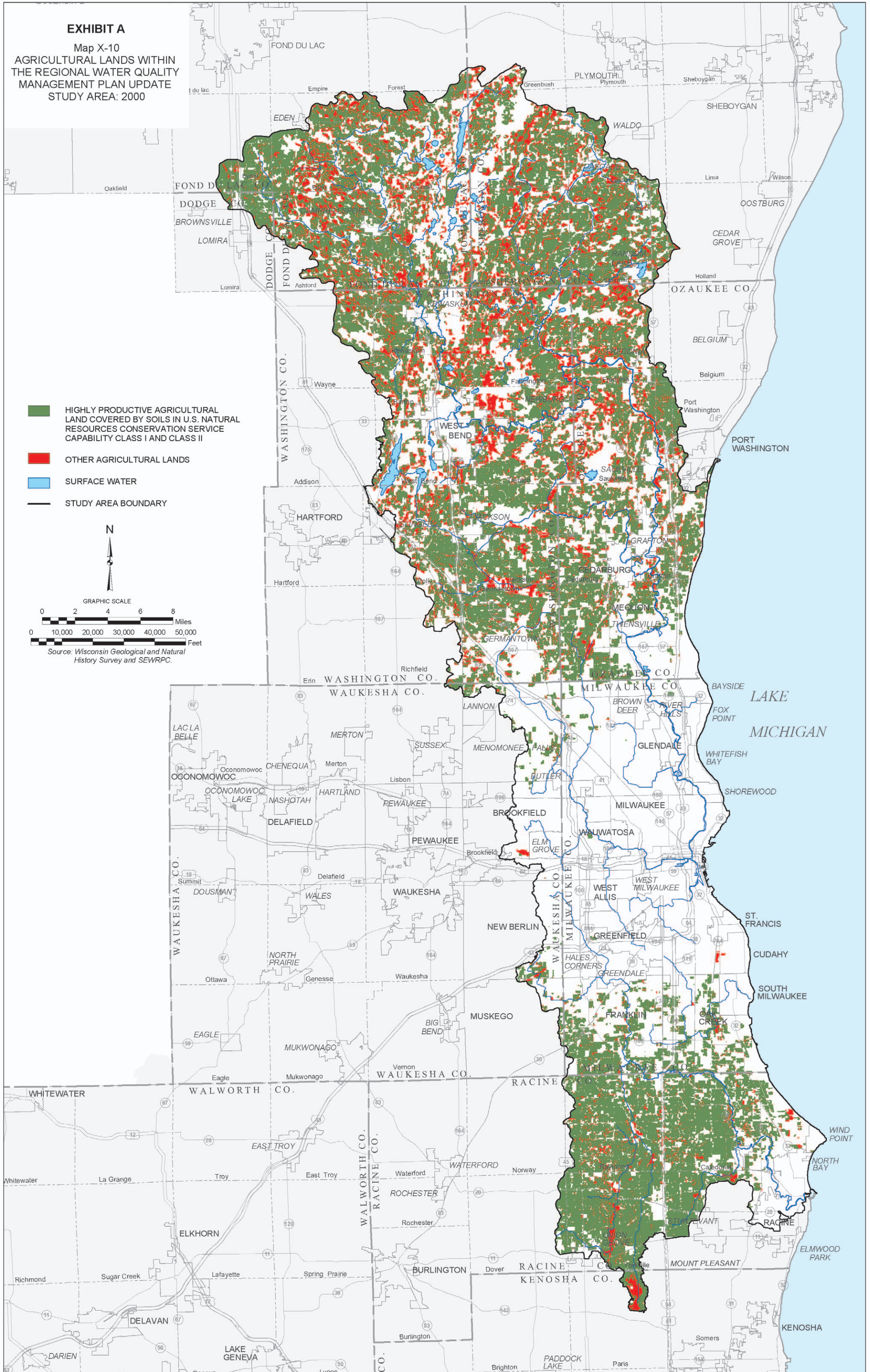


Exhibit B

Revised Subsection: Pages 29 and 30 of PR No. 50, Chapter X

Coordinated Programs to Detect and Eliminate Illicit Discharges to Storm Sewer Systems and to Control Urban-Sourced Pathogens that are Harmful to Human Health

The results of the analyses made by applying the calibrated water quality model as described in Chapters V and IX of this report indicated that urban impervious surfaces were significant contributors of fecal coliform bacteria to the streams of the study area. They also indicated that urban subsurface flows could be significant sources of fecal coliform bacteria. Some of these subsurface flows could be entering storm sewers through “illicit” connections from the sanitary sewer system such as infiltration from leaking sanitary sewers or cross connections between sanitary and storm sewers. Data for the MMSD service area as set forth in a 2005 bacteria fate and transport study⁵³ show that human-specific *Bacteroides* were detected in discharges from 11 of 17 stormwater outfalls sampled under the study. A recent MMSD study of bacteria at storm sewer outfalls in the Honey Creek subwatershed of the Menomonee River watershed indicated high fecal coliform counts from human sources even during dry-weather periods.⁵⁴ In addition, high bacterial concentrations have been observed at certain locations in streams in the study area during dry weather base flow conditions.

Fecal coliform bacteria were selected as one of the pollutants to be modeled under the water quality planning effort 1) because, from a regulatory perspective, they are used as an indicator of human sewage contamination, as evidenced by the adoption of fecal coliform water quality standards for streams under Chapter NR 102 of the *Wisconsin Administrative Code*, and 2) as a result of the adoption of the fecal coliform standard, a large amount of measured data on instream fecal coliform counts is available throughout the study area. In Lake Michigan, the USEPA has promulgated criteria for Wisconsin that call for application of an *Escherichia coli* (*E. coli*) standard. (*E. coli* constitute a major component of fecal coliform bacteria.)

While mainly intended as an indicator of human sewage contamination, fecal coliform bacteria and *E. coli* also serve as indicators of the possible presence of a broader range of possible threats to human health, including pathogens associated with both human sewage and domestic and wild animal wastes. Pathogens associated with human sewage include viruses, bacteria such as *Salmonella enteritidis*, *Salmonella typhi*, *Vibrio cholera*, and *Shigella dysenteries*, and protozoa such as *Cryptosporidium* and *Giardia intestinalis*. Pathogens associated with domestic and/or wild animals and livestock include *Salmonella enteritidis*, *Cryptosporidium* and *Giardia intestinalis*.

Comparison of fecal coliform concentrations under existing conditions, planned year 2020 conditions, and planned year 2020 conditions with implementation of the recommended plan are the only readily available means of evaluating the degree to which implementation of the recommended plan improves water quality conditions and achieves regulatory water quality standards. However, because the presence of fecal coliform bacteria is not sufficient indication of a significant threat to human health, which would actually result from the presence of pathogens that are generally not directly measured, the recommended plan calls for a coordinated program to reduce pathogens in surface waters through better identification of the sources of fecal coliform bacteria and elimination or control of those sources that would potentially be most harmful to human health. While the program to control pathogens is intended to focus on pathogens from human sources, which would be expected to more likely be harmful to human health, pathogens from domestic and/or wild animals and livestock could also

⁵³ *University of Wisconsin-Milwaukee Great Lakes WATER Institute, Bacteria Source, Transport and Fate Study-Phase 1, Volume 3, prepared for the Milwaukee Metropolitan Sewerage District, 2005.*

⁵⁴ *Milwaukee Metropolitan Sewerage District, Honey Creek Bacteria Investigation Survey, Technical Services—Engineering & Planning Department and Water Quality Research Department, July-August 2006.*

pose threats to human health. (Control of bacteria and other pathogens from livestock are addressed elsewhere in this report.)

Although human-sourced pathogens in stormwater management systems might be found in stormwater runoff, it is more likely that they enter storm sewers through “illicit” connections from the sanitary sewer system such as infiltration from leaking sanitary sewers or cross connections between sanitary and storm sewers. Thus, the main component of the recommended program to control pathogens from the urban environment is detection and elimination of illicit discharges from the sanitary sewerage system to the stormwater management system. In cases where a human bacteria source is detected, but illicit connections cannot be identified, or where there are high bacteria counts, but no human bacteria source is detected (indicating the bacteria are contained in stormwater runoff), it is recommended that consideration be given to pursuing innovative means of identifying and controlling possible pathogen sources in stormwater runoff.⁵⁵

The WPDES stormwater discharge permits issued pursuant to Chapter NR 216 of the *Wisconsin Administrative Code* call for each permitted municipality to implement a program for detection and elimination of illicit discharges to the municipal separate storm sewer system. Such programs typically involve enforcement of an illicit discharge and connection ordinance prohibiting the discharge, spill, or dumping of nonstormwater substances into waters of the State or the municipal storm sewer system; annual dry weather field screening at major outfalls,⁵⁶ including field analysis of any dry weather flows from those outfalls; and immediate investigation of portions of the municipal storm sewer system that have a reasonable potential for containing illicit discharges based on field screening results or other information.⁵⁷

⁵⁵*Because most more-traditional urban best management practices are not designed to control bacteria and other pathogens, it is necessary to consider alternative approaches to reduce bacteria and pathogen concentrations in the streams and lakes of the study area. The urban nonpoint source sensitivity analysis described in Chapter IX indicated that installation of stormwater end-of-pipe treatment, such as disinfection units, could be an effective component of the overall water quality plan; however, when the effects of disinfection units on reducing fecal coliform on a watershedwide basis were evaluated based on water quality model analyses, it was found that neither significant improvements in instream water quality nor improvements in compliance with the fecal coliform bacteria water quality standards would be expected if a large-scale disinfection unit program were implemented. The Technical Advisory Committee expressed strong opposition to recommending the installation of such “end-of-pipe” treatment facilities. That opposition was primarily based on relatively high capital and operation and maintenance costs; concerns related to the effectiveness of the units in treating turbid stormwater runoff, which can reduce the effectiveness of ultraviolet disinfection; and overall concerns about the feasibility of effectively operating and maintaining such units. Thus, after further investigation, and in consideration of the factors listed above, installation of disinfection units is not recommended.*

⁵⁶*Section NR 216.002(16) defines a “major outfall” as “a municipal separate storm sewer system outfall that meets one of the following criteria:*

- (a) A single pipe with an inside diameter of 36 inches or more, or from an equivalent conveyance (cross-sectional area of 1,018 inch²) which is associated with a drainage area of more than 50 acres.*
- (b) A municipal separate storm sewer system that receives storm water runoff from lands zoned for industrial activity that is associated with a drainage area of more than 2 acres or from other lands with more than 2 acres of industrial activity...”*

⁵⁷*Under the requirements of the WPDES permits, field analysis is generally done for pH, total chlorine, total copper, total phenols, and detergents or surfactants.*

Based on review of preliminary recommended plan water quality model results for the streams of the study area and Lake Michigan, it was decided to target enhanced urban illicit discharge control and/or innovative methods to identify and control possible pathogen sources in stormwater runoff from urban areas in the subwatersheds indicated on Map X-12. The subwatersheds that are excluded were identified through application of the water quality models as achieving, or nearly achieving, substantial compliance with instream fecal coliform bacteria standards under preliminary recommended plan conditions without implementation of additional urban controls. To address the threats to human health and degradation of water quality resulting from human-specific pathogens and viruses entering stormwater systems, it is recommended that each municipality in the subwatersheds indicated on Map X-12 implement a program consisting of:⁵⁸

- Enhanced storm sewer outfall monitoring to test for fecal coliform bacteria in dry- and wet-weather discharges
- Molecular tests for presence or absence of human-specific strains of *Bacteroides*, an indicator of human bacteria at outfalls where high fecal coliform counts are found in the initial dry-weather screenings,
- Additional dry-weather screening upstream of outfalls where human-specific strains of *Bacteroides* are found to be present, with the goal of isolating the source of the illicit discharge, and
- Elimination of illicit discharges that were detected through the program described in the preceding three steps.

It is anticipated that the program outlined above would also identify cases where illicit connections are not the primary source of bacteria, indicating that stormwater runoff is the main source. To adequately assess the appropriate way to deal with such bacteria sources (and the potentially associated pathogens), it is recommended that human health and ecological risk assessments addressing pathogens in stormwater runoff be conducted. Such risk assessments generally include the following:

- “Hazard identification, in which the human health (or ecological) effects of the particular hazard are described;
- Exposure assessment, which determines the relevant pathways and nature of the exposed population along with quantitative estimates on the levels of exposure;
- Dose-response assessment, which characterizes the relationship between administered dose and incidence of health effects (or ecological degradation); and
- Risk characterization, which integrates the information from the previous steps in order to estimate the magnitude of risks and to evaluate variability and uncertainty.”⁵⁹

⁵⁸*Guidance on conducting an illicit discharge detection and elimination program can be found in the manual entitled Illicit Discharge Detection and Elimination – A Guidance Manual for Program Development and Technical Assessments, by Edward Brown and Deb Caraco of the Center for Watershed Protection and Robert Pitt of the University of Alabama, October 2004. The manual can be accessed at www.cwp.org/idde_verify.htm.*

⁵⁹*National Research Council (NRC), Science and Judgment in Risk Assessment, National Academy Press, 1994, and U.S. Environmental Protection Agency, Assessment Guidance for Superfund: Volume I – Human Health Evaluation Manual (Part A), Interim Final, December 1989, both cited in GeoSyntec Consultants, Interim Phase I (Footnote Continued)*

Depending on the findings of the risk assessments, consideration should be given to pursuing innovative means of identifying and controlling possible pathogen sources in stormwater runoff.⁶⁰

The benefits of coordinated programs to detect and eliminate illicit discharges to storm sewer systems and to control urban-source pathogens that are harmful to human health were represented in the water quality modeling analyses relative to their potential reduction in instream and in-Lake fecal coliform bacteria counts and are reflected in the water quality results set forth in Appendix M.

Dry Weather Risk Assessment of Human Health Impacts of Disinfection Vs. No Disinfection of the Chicago Area Waterways System (CWS), *prepared for the Metropolitan Water Reclamation District of Greater Chicago*, November 2006.

⁶⁰*It is not expected that municipalities would conduct individual risk assessments. It is envisioned that such assessments would be done at a watershed scale. Possible mechanisms for administering and funding such assessments are described in Chapter XI of this report.*

Exhibit C

02/02/07 LETTER FROM THOMAS J. BUNKER

**Racine Water and
Wastewater Utilities**

Thomas J. Bunker, P.E.
General Manager

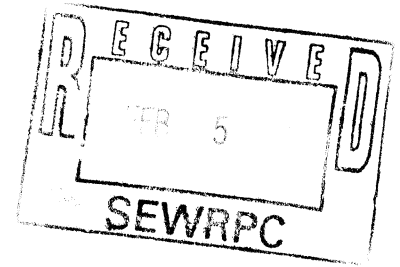


Keith E. Haas, P.E.
Chief of Operations

Charles A. Schweitzer, P.E.
Chief Engineer

Kenneth M. Scolaro, C.P.A.
Administrative Manager

February 2, 2007



Mr. Michael Hahn
Southeastern Wisconsin Regional
Planning Commission
916 N. East Avenue
P.O. Box 1607
Waukesha, WI 53187-1607

Dear Mr. Hahn:

I thought I would put my thoughts on paper because sometimes my comments can become somewhat disjointed, especially on the following topic.

As you remember, my complaint is on the draft text of SEWRPC Planning Report #50 ("A Regional Water Quality Management Plan Update for the Greater Milwaukee Watersheds", Chapter X, pages 29-30). These pages potentially recommend U.V. disinfection for end-of-pipe storm water systems. My complaint falls under three categories; A) logic, B) potential of equipment to do job stated, and C) expense.

To talk about the logic part of the issue, I would like to give you my view of the background topics that come to mind. First of all, when you talk about fecal coliforms, you have to understand that the science, the tests, and the standards are not all there yet. For example, there is a different risk assessment to human health for different types of fecal coliforms. As an indicator generically of pathogenic bacteria that would hurt humans, it is a lousy indicator. In addition, studies are showing that you can have regrowth of fecal coliforms in water. The EPA and the DNR are looking at going to an E-coli test for wastewater instead of the fecal test because of the question of whether E-coli or fecal coliform is a better indicator organism.

Many of the standards are recognized by professionals as meaningless because of these issues. The Beach Act is currently redoing immersion tests to try and determine a more accurate way of finding an indicator level that would tell when a beach should be closed. I would suggest that these results may impact Chapter NR151 as to fecal coliform limits at end-of-pipe in the next five years.

The second background issue on the logic question is that the study begs the question of why can you have combined sewer overflows with mega-doses of fecal coliform going into the rivers in Milwaukee that are pathogenic to humans and yet in separated areas you want end-of-pipe U.V. treatment on all fecal coliform, even if they don't impact humans. The answer may be in DNR

stream classification and criteria for each river. Unfortunately, the study does not detail anything about these differences, unless I missed it.

So, in summary on the logic issue, I would suggest that the study is recommending U.V. end-of-pipe treatment based on bad science, lousy standards, undeveloped differentiation of stream standards, and no risk assessment.

My second complaint is on the U.V. equipment itself. This process is based on ultraviolet light messing up bacteria's DNA so they cannot reproduce. The important thing to remember is that the bacteria have to be able to absorb this light. Therefore, the more turbidity in the water, the higher the power required, and/or the nearer the bacteria have to be to the lamps. The lamps contain mercury, by the way, so you don't want to break them. So, what you want is to be able to design a system that will handle "X" amount of flow. If you over design ($X + 1$), you are using too much power and incurring large power bills. If you under design ($X - 1$), and have a large storm, you either store the entire storm water for treatment over time or you bypass the equipment at a certain level. Since there always is a bigger storm, storage may be a cost you may have to consider. The turbidity is a big issue. At the Wastewater Plant, the U.V. system is after clarification. I am not sure it would work in highly turbid storm water.

Finally, my problem on cost has to be talked about. This is not your "one size fits all" easy modification for end-of-pipe treatment. It may require a building, large power service or services, backup generators, and storage. It also requires much more land than what municipalities have available. I would suggest that initial capital costs and the power generation required for end-of-pipe storm treatment may be so great that the cost benefit ratio is meaningless. Since municipalities are under extreme financial pressure, they would do everything available to avoid this construction. This study should not be the start of this battle.

Please take these comments as constructive criticism of the study. I have the utmost respect for you and your staff.

Very truly yours,

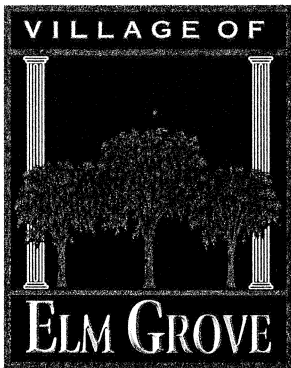


Thomas J. Bunker, P.E.
General Manager

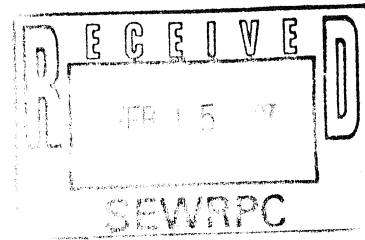
TJB/nms

Exhibit D

LETTER FROM NEIL H. PALMER, PRESIDENT, VILLAGE OF ELM GROVE



Mr. Michael G. Hahn
Chief Environmental Engineer
SEWRPC
W239 N1812 Rockwood Drive
Waukesha, WI 531187



Dear Mr. Hahn,

I am writing today to commend you and the Commission for the SEWRPC presentation to the Executive Council of the Intergovernmental Cooperation Council of Milwaukee County on 2/12/07. The presentation outlined the current status of the Commission's Regional Water Quality Management Plan Update; the 208 Plan.

The presentation outlined two possible 208 Plan options:

- An integrated watershed-based recommended plan, or
- A regulatory watershed-based recommended plan

I strongly urge SEWRPC to continue pursuing the Integrated Watershed-Based Recommended Plan as the course dictated by:

1. The scientific data collected for the SEWRPC//MMSD joint planning effort. We should base our efforts to protect and improve the environment on the best science, not a desire to avoid regulatory conflict.
2. The economic analysis conducted to date showing savings approaching \$152 million. Regional taxpayers will support environmental improvement efforts which show the greatest benefit for the least cost.
3. Simple common sense; regionally, statewide and nationally our goal for 201 and 208 planning efforts is to improve water quality and protect public health and welfare. We should strive to actually do that; not strive to meet a regulatory framework that has not kept up with the best science or the vast strides we have made in the previous 30 years.

I understand that the course I advocate is seen by some as the more difficult option due to the need for changes in existing MMSD permit conditions and the creation of new institutional frameworks to implement and manage such an approach. However, the benefits derived from this new work far outweigh the effort. I am prepared to help support a regional watershed approach, please call on me if I can help in any way.

Sincerely,

A handwritten signature in black ink, appearing to read "Neil H. Palmer". The signature is fluid and cursive.

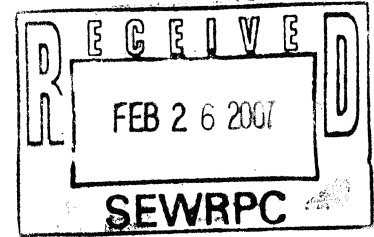
Neil H. Palmer
Elm Grove Village President

cc: P. Evenson, SEWRPC; K. Shafer, MMSD; ICC Executive Council Members

Exhibit E

02/19/07 LETTER FROM WILLIAM J. MIELKE

February 19, 2007



Mr. Michael Hahn, PE, PH
Chief Environmental Planner
Southeastern Wisconsin Regional Planning Commission
P.O. Box 1607
Waukesha, WI 53187-1607

RE: Presentation To The ICC

Dear Mr. Hahn:

Thank you for your presentation to the ICC regarding SEWRPC's Regional Water Quality Management Plan. It has become apparent that the majority (over 90%) of the water quality problems in the greater Milwaukee watersheds come from non-point source pollution.

Given that SEWRPC's responsibility is to prepare a water quality management plan that seeks a cost effective solution to improvement of our region's water quality, I was surprised that SEWRPC would be suggesting two possible 208 plans. To have both the integrated watershed based water quality management recommended plan and a regulatory watershed based recommended plan, would not serve the region well. All of the studies to date have shown that a watershed based approach, which identifies the most cost effective measures to improve water quality, is superior to the regulatory approach.

Both the MMSD and SEWRPC planning documents clearly indicate that the future direction of EPA is toward a water quality watershed based approach and that future NPDES permits could be issued to support that approach. The recommended plan should embody this approach as the findings totally support that conclusion. The regulatory based plan could be identified as an option which was considered, but it should not be confused with what SEWRPC is recommending. MMSD will need SEWRPC's support and documentation to help achieve new permits in order to spend the least amount of taxpayers' money and achieve the highest degree of water quality improvement.

I believe it is imperative that only one recommended plan be adopted by SEWRPC to clearly indicate the future direction of our region's water quality improvement efforts.

Very truly yours,

RUEKERT/MIELKE

A handwritten signature in cursive script that reads "William J. Mielke".

William J. Mielke, P.E., R.L.S.
President, CEO

WJM:lfc



Ruekert·Mielke

engineering solutions for a working world

Letter to Mr. Michael Hahn, PE-PH

February 19, 2007

Page 2

cc: Philip Evenson, Executive Director, SEWRPC
Kevin Shafer, Executive Director, MMSD
Neil Palmer, Village President, Village of Elm Grove
Dave DeAngelis, Village Manager, Village
Charles J. Hargan, Village President, Village of Elm Grove
Mayor Jack F. Chiovatero, City of New Berlin
John Ehlinger, Village President, Village of Butler
Karl V. Hertz, Village President, Village of Thiensville
Mayor Christine Nuernberg, City of Mequon
Mayor Jeff Speaker, City of Brookfield
Mayor John R. Johnson, City of Muskego
Richard Rechlicz, Village President, Village of Menomonee Falls
Mayor Michael J. Neitzke, City of Greenfield
File