

**MINUTES OF THE FIFTH MEETING
SEWRPC REGIONAL WATER SUPPLY PLANNING ADVISORY COMMITTEE**

DATE: May 17, 2006
TIME: 9:00 a.m.
PLACE: Lower Level Conference Room
Regional Planning Commission Offices
W239 N1812 Rockwood Drive
Waukesha, Wisconsin

MEMBERS PRESENT

Kurt W. Bauer, Chairman	Executive Director Emeritus, SEWRPC
Robert P. Biebel, Secretary	Special Projects Environmental Engineer, SEWRPC
Julie A. Anderson	Director, Racine County Division of Planning and Development
Kenneth R. Bradbury	Hydrogeologist/Professor, Wisconsin Geological and Natural History Survey
Thomas J. Bunker	General Manager, Water and Wastewater Utility, City of Racine
Douglas S. Cherkauer	Professor of Geology, University of Wisconsin-Milwaukee
Lisa Conley	Representative, Town and Country Resource Conservation and Development, Inc.
Michael P. Cotter	Director, Walworth County Land Use and Resource Management Department
Charles A. Czarkowski	Regional Water Program Expert, Wisconsin Department of Natural Resources, Southeast Region
Daniel S. Duchniak	General Manager, Waukesha Water Utility, City of Waukesha
Charles P. Dunning	Hydrologist, U.S. Geological Survey
Franklyn A. Ericson	Manager, Environmental Operations & Central Services, S.C. Johnson & Son, Inc.
Thomas M. Grisa	Director of Public Works, City of Brookfield
Andrew A. Holschbach	Director, Ozaukee County Planning, Resources, and Land Management Department
Terrence H. Kiekhaefer	Director of Public Works, City of West Bend
Carrie M. Lewis	Superintendent, Milwaukee Water Works, City of Milwaukee
Mark Lurvey	Agricultural Business Operator
Patrick T. Marchese	Member, Water Policy Advisory Panel, Public Policy Forum
George E. Melcher	Director, Kenosha County Department of Planning and Development
Matthew Moroney	Executive Director, Metropolitan Builders Association of Greater Milwaukee
George A. Morris (for Dale R. Shaver)	Manager, Environmental Health Division, Waukesha County Department of Parks and Land Use
Paul E. Mueller	Administrator, Washington County Planning and Parks Department
Jeffrey Musche	Administrator/Clerk, Town of Lisbon
Michael P. Rau	General Manager, We Energies-Water Services
Edward St. Peter	General Manager, Water Utility, City of Kenosha
James Surfus	Senior Environmental Engineer, Miller Brewing Company
Daniel S. Winkler	Director of Public Works and Utilities, City of Lake Geneva
Steven N. Yttri	General Manager, Water and Sewer Utility, City of Oak Creek

MEMBERS EXCUSED OR OTHERWISE ABSENT

David Ewig	Water Superintendent, City of Port Washington
Jeffrey A. Helmuth	Hydrogeologist Program Coordinator, Wisconsin Department of Natural Resources, Madison
Roger C. Johnson	Manager, North Shore Water Commission
Thomas J. Krueger	Water and Wastewater Utility Director, Village of Grafton
George A. Torres	Director, Transportation & Public Works, Milwaukee County Department of Parks and Public Infrastructure

GUESTS

Paul G. Hayes	Mid Kettle Moraine Partners Group
Randall R. Kerkman	Administrator, Town of Bristol
James Rowen	Concerned Citizen
Steven H. Schultz	Department Head, Water Supply and Wastewater Treatment, Ruekert & Mielke, Inc.

STAFF

Catherine D. West	Planner, Southeastern Wisconsin Regional Planning Commission
Kenneth R. Yunker	Deputy Director, Southeastern Wisconsin Regional Planning Commission

CALL TO ORDER AND ROLL CALL

Chairman Bauer called the meeting to order at 9:00 a.m. Roll call was taken by circulating an attendance signature sheet, and a quorum was declared present.

PRESENTATION BY COMMITTEE MEMBER PATRICK T. MARCHESE ON PUBLIC POLICY FORUM REPORT, "CLEAN WATER, HEALTHY FUTURE; FRAMEWORK FOR ACHIEVING AN INTEGRATED WATER RESOURCE MANAGEMENT STRATEGY IN THE MILWAUKEE REGION," DATED FEBRUARY 2006

Chairman Bauer then referred the Committee to Agenda Item 2, and reminded the Committee that it was agreed at the April 5, 2006, Committee meeting to ask Mr. Patrick T. Marchese to present a summary of the recently prepared Public Policy Forum report on water resources. He noted that Mr. Marchese was a member of the Public Policy Forum Water Policy Advisory Panel which panel had been responsible for the preparation of the subject report. Chairman Bauer then asked Mr. Marchese to proceed with the presentation on the Public Policy Forum report.

[Secretary's Note: A copy of the PowerPoint presentation given by Mr. Marchese is attached to this minutes as Exhibit A.]

Ms. Conley referred to one of the recommendations in the Public Policy Forum report related to the need for clarification and revision to certain State laws. She asked if there would be an opportunity for the regional water supply plan to include recommendations for changes in regulations or policies at the State level. She cited the Public Service Commission policies on water rate structures as an example. Mr. Biebel indicated that there would indeed be opportunity for including such recommendations in the regional water supply plan implementation chapter. He noted that once the recommended water supply

plan was identified, the need for such changes in regulations and policies would be identified and included in the implementation strategy.

Mr. Mueller discussed issues related to the management of onsite sewage disposal systems. He noted the desirability of having management agencies, such utility districts, in place with responsibility for the performance of onsite sewage disposal systems. He noted that onsite systems represent an important nonpoint source of pollution to surface waters and asked if the Public Policy Forum report had addressed that issue. Mr. Marchese responded that the issue had been discussed, and cited concerns about maintaining local control of the management of such systems, and about land development rights. He concluded that the concern raised by Mr. Mueller was an important one with regard to integrated water resources management, and should be addressed in subsequent water resources planning and management efforts within the Region.

Mr. Yunker noted that the Public Policy Forum report made no mention of the regional water supply planning effort. Consequently, he said, the report implied there was nothing being done to deal with the issues being raised. Mr. Marchese responded that the Public Policy Forum panel involved in preparing the report had been briefed on the regional water supply planning program. He indicated that the panel was of the opinion that the regional water supply planning effort was focused on a technical planning issue, while the Public Policy Forum report was focused on policy planning issues. Mr. Yunker observed that these two kinds of issues cannot be separated, and recommended that the Public Policy Forum panel involved in the continuing work efforts of that Forum recognize the regional water supply planning program in such subsequent efforts.

Mr. Bunker indicated that he appreciated the comments Mr. Marchese made regarding the need for technical and scientific information, such as water quality monitoring information, to support integrated water resources planning. He pointed out that the U.S. Environmental Protection Agency has a major ongoing program designed to provide such data on Lake Michigan. Mr. Marchese responded that he was aware of that program, but cited concern for the ability to sustain this effort, given trends in Federal funding for such programs.

There being no further questions or comments on Mr. Marchese's presentation, Chairman Bauer thanked Mr. Marchese on behalf of the Committee for his presentation.

CONSIDERATION OF MINUTES OF THE MEETING OF APRIL 5, 2006

Chairman Bauer noted that copies of the minutes of the April 5, 2006, meeting of the Regional Water Supply Planning Advisory Committee had been provided, to all members of the Committee for review prior to the meeting, and asked that the Committee consider approval of those minutes.

Chairman Bauer reminded the Committee members that all of the revisions which were requested by the Committee to be made in the materials reviewed at that meeting were intended to be fully documented in the minutes. He reminded the Committee members that approval of the minutes would constitute final approval of the subject portion of Chapter III, "Existing Water Supply Conditions in the Region," of SEWRPC Planning Report No. 52, including Appendix C, "Glossary of Terms and List of Abbreviations", and the Table of Contents and Chapter I, "Introduction," of SEWRPC Technical Report No. 43, *State-of-the-Art of Water Supply Practices*, which the Committee had reviewed. He noted that the approval would, of course, be subject to any comments received today on the minutes and the attachments.

Mr. Rau referred to Table 26 on page 100 of the revised Chapter III of SEWRPC Planning Report No. 52. He noted that the table did not include information on a number of water utilities, including the We

Energies system. Mr. Biebel responded that the intention was to present the start-up date and latest upgrading date for those water utilities which owned and operated sources of supplies, those utilities being the primary historic sources of water supply within the Region. After further discussion, it was agreed to change the title of Table 26 to “Date of Start-Up and Latest Upgrading for the Primary Municipal Water Suppliers in Southeastern Wisconsin.” An explanatory footnote was also added to clarify the focus of the table.

Mr. Duchniak indicated that the initial start-up date for the Waukesha Water Utility was 1886. That change was duly noted.

Mr. Biebel referred to Figure 14a on page 115 and indicated that there were questions regarding the per capita residential water use rates shown which were being investigated. He noted, by way of example, the relatively low value of 39 gallons per capita per day for residential use in Waukesha County during calendar year 2000. He noted that the value seemed too low, even though the year 2000 was a very high rainfall year, with a total of nearly 45 inches of rainfall recorded in Waukesha County. Mr. Grisa also questioned the residential water use data, noting that the usage in Waukesha and Washington Counties were significantly lower than in Kenosha, Milwaukee, and Racine Counties, which appeared to be questionable. After further discussion, it was agreed that the data set used would be reviewed and expanded to include the year 2005. Once that review and expansion are completed, the findings will be reported to the Committee.

Ms. Conley referred to the second paragraph on page 127 of the revised Chapter III of SEWRPC Planning Report No. 52. She asked if the amount of the water used for thermoelectric power generation purposes which was lost to evaporation and other uses could be quantified. Mr. Biebel replied that the Commission staff would attempt to determine that amount, and, if it was possible to do so, would modify the text accordingly.

[Secretary’s Note: The following text has been added to the last paragraph on page 127:

“There are four power plants located within the planning study area which draw water from Lake Michigan or its estuaries. Three of power plants typically use open-cycle cooling systems which withdraw water from Lake Michigan, pump it through steam condensing equipment, and then return the water to the Lake or estuary system. These facilities are reported to typically return 99.9 percent of the cooling water used to the source.¹ This applies to the We Energies Port Washington power plant, the existing and proposed Oak Creek power plants, and the Valley Power Plant. Because of its distance from Lake Michigan, the Pleasant Prairie power plant uses two mechanical draft cooling towers to transfer heat to the atmosphere through a wet evaporative-cooling process. The Pleasant Prairie plant evaporates about 75 percent of the water withdrawn from the Lake. That amounts to 10 to 15 million gallons per day which is evaporated, and not returned directly to the Lake.

¹*Wisconsin Energy Corporation, 2003 Performance Report.*”]

Ms. Lewis referred to page 127 of the revised Chapter III of SEWRPC Planning Report No. 52 and noted that the names *Cryptosporidium* and *Giardia* should be italicized. The change was duly noted.

Ms. Lewis referred to the fourth paragraph on page 126 of the revised Chapter III of SEWRPC Planning Report No. 52. She requested, and it was generally agreed, that the amount of water referenced as being diverted for water supply purposes be placed in context of the Lake volume.

[Secretary's Note: In response to this request, the following sentence was added as the last sentence in the last paragraph on page 126:

“The volume of Lake Michigan is estimated to approximate 1,180 cubic miles, or about 1,270,000,000 million gallons. Based upon a replacement of one percent of this volume each year, the average daily rainfall on less evaporation and inflow to the Lake would be about 35,000 million gallons per day.”]

Dr. Cherkauer referred to Figure 13c on page 105 of the revised Chapter III of SEWRPC Planning Report No. 52, and recommended that a note be placed on the map to indicate that private individual well pumping was not specifically accounted for in the drawdown estimates.

[Secretary's Note: In response to Dr. Cherkauer's recommendation, the following note was added to Figure 13c:

“NOTE: The modeling analyses used to develop the drawdown estimates illustrated on this figure did not specifically account for most of private individual -- private, on site -- well pumping occurring in the study area. Most of the water pumped by such systems is returned to the aquifer via onsite sewage disposal systems. The modeling did, however, specifically account for the private individual well pumping in the City of Mequon where most of the water has historically not been returned to the aquifer due to the availability of a public sanitary sewer system.”]

Dr. Cherkauer referred to Map 27 on page 122 and related text on page 120 of revised Chapter III of SEWRPC Planning Report No. 52. He asked that the statements and map depiction related to dissolved solids concentrations of over 1,000 milligrams per liter be checked. He indicated it was possible the high levels reported were encountered in mixed aquifer wells which extended through the shallow Silurian-dolomite aquifer into the deep aquifer. Mr. Bradbury indicated he would check for this information.

[Secretary's Note: Upon checking, it was found that the map and text were correct as drafted.]

Mr. Erickson referred to the text on the power plant water uses on page 127 and suggested that the amounts of water also used be put in the context of the Lake Michigan inflows and volumes.

[Secretary's Note: The following sentence was added to the end of the revised second paragraph on page 127:

“The amounts of water withdrawn from Lake Michigan and then largely returned may be compared to the total average daily lake inflow of about 35,000 mgd.”]

There being no further corrections or additions, the minutes of the meeting of May 5, 2006, were approved as published on a motion by Mr. Melcher, seconded by Mr. Mueller, and carried unanimously.

CONSIDERATION OF CHAPTER III, “SURFACE WATER TREATMENT TECHNOLOGIES,” OF SEWRPC TECHNICAL REPORT NO. 43

Chairman Bauer asked the Committee to consider Agenda Item 4. He noted that all Committee members had received a revised copy of Chapter III of SEWRPC Technical Report No. 43 for review prior to the meeting. He noted that a review of Chapter III had been initiated at the last meeting, but was suspended after page 5 due to time constraints. The revised chapter sent to the Committee had been highlighted, he said, to indicate changes requested by the Committee. He then asked Mr. Schultz to review the chapter with the Committee on a page-by-page basis.

Mr. Grisa referred to the second first order heading on page 1 and recommended that the word “and” be added after the word “Water.” The change was duly noted.

Ms. Conley referred to the first full paragraph on page 3 and indicated that she had raised the issue of the potential importance of blue-green algae in surface water at the last meeting. She indicated that her concern was related to a blue-green algae which had different toxicity impacts than the algae cited in the revised text. She indicated that she had drafted a suggested text addition relating to her concern which she would provide to the staff.

[Secretary’s Note: The following text has been added to the first full paragraph on page 3:

“The blue-green algae, *Cylindrospermopsis*, is an invasive algae which is now present in major inland lakes in Wisconsin. This algae is difficult to detect, and because it releases toxins continuously. These toxins are toxic to animals and humans making this algae a particularly undesirable invasive species. This algae has not been as yet reported as an issue in Lake Michigan.”]

Mr. Biebel referred to the fourth full paragraph on page 5 and indicated that Mr. Helmuth had provided written comments from the WDNR-Madison staff which recommend adding the words “with no sedimentation” following the word “flocculation.” The change was duly noted.

Mr. Biebel referred to the first full paragraph on page 6 and noted that Mr. Helmuth had recommended that it be noted that sedimentation is required by State regulation in the treatment of Lake Michigan water. Mr. St. Peter disagreed, noting that sedimentation is not needed for certain types of pressure filtration, such as used at Manitowoc, Wisconsin.

[Secretary’s Note: In response to Mr. Helmuth’s comments, the following sentence was added after the second sentence in the first full paragraph on page 6:

“However, sedimentation is required for treating Lake Michigan water with gravity filtration processes.”]

Ms. Lewis referred to the second paragraph on page 7. She recommended, and the Committee agreed, to add filtered water quality and time as viable backwater cycle determinants.

[Secretary’s Note: The seventh sentence in the second paragraph on page 7 was revised to read as follows:

“Rapid sand filters must be backwashed on a regular basis, which is generally done on a schedule determined by consideration of a number of

factors, including gallons treated, head loss through the filter, filtered water quality, and a time since the last backwash.”]

Mr. Marchese referred the last paragraph at the bottom of page 8 regarding to the operation and maintenance costs for gravity filtration, and asked if the costs associated with the treatment and disposal of process wastewater was included. Mr. Schultz indicated that these costs were not included, such costs being highly variable on a site specific basis. After further discussion, it was the consensus of the Committee to add a section to the text addressing the costs of the treatment and disposal of process wastewater for each applicable processes.

[Secretary’s Note: The text of the last paragraph on page 8 and the first paragraph on page 9 have been revised in response to the Committee’s review, and the text is set forth in the revised copy of Chapter III transmitted with these minutes.]

Mr. Biebel referred to the second full paragraph on page 11 describing low-pressure membrane filtration. He noted that Mr. Helmuth’s written comments recommended that the words “in low-pressure cartridges or are” be added after the word “are” in the second sentence and that the words “filterbox or” be added after the word “a” in the third sentence. The changes were duly noted.

Mr. Marchese referred to the section on page 11 relating to low pressure membrane filter technologies. He indicated that a recent installation at Manitowoc involved a two phase membrane filtration methodology, and that the process was found to be cost effective. Mr. Schultz noted that he had contacted Manitowoc and other water utilities to obtain actual costs. Mr. Marchese asked if vendors of such processes had been contacted. Mr. Schultz replied that one such vendor had provided cost data. Mr. Marchese recommended that to the extent possible all of the cost data include a reasonable number of local project costs in order to validate data from other sources, and the cost curves to be included in the report. He noted that this would make the cost data more consistent with the costs for groundwater systems which are based, in some cases, entirely on local project costs. He cited plants at Oshkosh, Minneapolis, and Lake Forest, Illinois, as other examples, that should be investigated. After further discussion, the Committee agreed that the consultant should obtain additional cost data from operating surface water treatment plants. Those data should then be plotted on the cost curves to be included in an appendix for the various treatment plant components as a means of verifying the continued validity of the cost curve data.

Mr. Bunker cited New York City as an example of where filtration had been avoided by protecting the water sources prior to treatment.

Mr. Biebel referred to the first paragraph on page 14 relating to filtration avoidance. He reported that Mr. Helmuth’s written comments recommended the following sentence to be added to that paragraph: “Filtration avoidance is not currently permitted under Wisconsin Department of Natural Resources regulations.”

Ms. Conley asked if it there should be a recommendation to protect the source water in order to reduce treatment requirements, even if treatment steps cannot be avoided. The Committee agreed that this need should be identified.

[Secretary’s Note: The following sentence has been added to the revised first full paragraph on page 14:

“Even though filtration is required, the protection of source water from contamination should be an important component of any comprehensive

water supply in order to minimize treatment requirements and the risk to public health.”]

Mr. St. Peter recommended, and it was generally agreed, to add filtration to the list of disinfection methods on page 14.

Ms. Lewis referred to the section on chloramination on page 15 and indicated that chloramination was effective as a primary means of disinfection. She indicated that chloramination was effective when used as a secondary disinfection process. A lengthy discussion followed regarding the uses and applicability of various disinfection methods, their synergistic affects, and the need for multiple barrier approaches to disinfection. Mr. Yttri referenced the U.S. Environmental Protection Agency (U.S. EPA) “toolbox” approach which provides guidance on the multiple barrier approach to the treatment process. Ms. Lewis agreed that this approach was the currently accepted practice. At the conclusion of the discussion, it was agreed to: revise the section on chloramination on page 15; add text to the disinfection section on page 14 referencing the multiple barrier approach and the synergistic affects of multiple disinfection techniques and the U.S. EPA toolbox guidance; expand the text on multi-barrier approach on page 16 to include a reference to the U.S. EPA “toolbox” guidance procedures; and expand the section on treatment trains on page 21 to include the multiple barrier approach and U.S. EPA “toolbox” guidance.

[Secretary’s Note: The revised text is included in the revised copy of Chapter III attached to these minutes.]

Mr. Biebel noted that the written comments submitted by Mr. Helmuth referred to the first sentence of the last paragraph on page 14 and recommended striking the terms “common bleach,” “or liquid,” and “commercial bleach.” The changes were duly noted.

Mr. Rau referred to the text on page 17, noting that the cost of ozonation seemed to be relatively low, less, and questioned whether those costs could be substantially lower than the costs for treatment using ultraviolet light as noted in the second paragraph on page 17. Mr. Marchese suggested that the costs for the Green Bay area water treatment plant be checked as another source on the cost of ozonation. Mr. Bunker indicated it would typically be difficult to segregate out the costs for the disinfection facilities as they are often part of a larger treatment plant project. Mr. Marchese also indicated that the City of Milwaukee costs for ozonation would not be considered typical because of the large scale involved. He recommended, and it was generally agreed, to add the word “not” ahead of the word appropriate in the last line 7 of the first paragraph on page 17.

Ms. Lewis referred to the second sentence of the paragraph on corrosion inhibitors on page 17. She recommended, and it was generally agreed, to add the words “and building plumbing” after the words “distribution system” in the second sentence of the fifth paragraph on page 17.

Mr. Grisa referred to the paragraph on fluoridation on page 17. He suggested that there be text added which indicates that fluoridation of public water supplies was highly controversial, and that there were also good arguments for not fluoridating. A lengthy discussion followed on the need for additional text. Based upon that discussion, it was generally agreed to change the words “preventing” to “reducing the incidence of” in the first sentence. It was further agreed that the staff would prepare a revised text for this paragraph for consideration by the Committee.

[Secretary’s Note: The following sentences were added after the first sentence of the fourth paragraph on page 17:

“Fluoridation of drinking water is an option which can be undertaken to reduce the incidence of dental cavities. The use of fluoridation for this purpose is controversial, with valid questions being raised regarding the cost effectiveness of the fluoridation of water supplies, as opposed to fluoridation provided as a part of individual dental care in and about its potential adverse health impacts.”]

Ms. Lewis referred to the section on pharmaceuticals and endocrine disrupting chemicals on page 18. She recommended the section, including the title, be revised to “pharmaceuticals and personal care products”, which is a current term for this class of emerging pollutants. Mr. Bunker asked why this group of chemicals had been highlighted. He indicated that there were a large number of unregulated contaminants on the U. S. Environmental Protection Agency list of drinking water contaminants. Chairman Bauer recommended, and it was agreed, to modify the subject section of the report not only by changing the heading as suggested, but to indicate that there were a number of emerging and unregulated contaminants with the pharmaceuticals and personal care products and endocrines disrupting chemicals described in more detail as examples.

[Secretary’s Note: The heading of the subject section was changed to “Emerging and Unregulated Contaminants,” the text has been revised to refer to pharmaceuticals and personal care products and endocrine disrupting chemicals as examples. The revised text is included in the revised version of Chapter III attached to these minutes.]

Mr. Biebel noted that the written comments submitted by Mr. Helmuth referenced the section on chlorine dioxide on page 15 and recommended that the following sentence be added after the first sentence of that section. “However, elevated levels of chlorine dioxide or its chlorite by-products are acute contaminants.” This addition was duly noted. Mr. Helmuth’s written comments also referred to the section on fluoridation and noted that “hydrofluosilic acid is now more commonly termed “fluorosilicic acid”, formally referred to as “hydroflousilic acid”. The revision was duly noted.

Mr. Marchese recommended that source controls be added as a method of control. He cited the importance of that type of control in the wastewater treatment field for certain pollutants. Ms. Lewis also suggested, and it was generally agreed, that the concept of source control be added to the text that was previously agreed to be revised under the title “multiple-barrier approach” on page 16.

[Secretary’s Note: The concept of source control was added to the text under the section on multiple barrier approach.]

Mr. Duchniak referred to the second last sentence in the seventh paragraph on page 18. He questioned the statement that surface waters were more susceptible to contamination by pharmaceuticals and endocrine disruption chemicals than ground waters. He cited the discharge of these substances from septic tanks to the groundwater as a concern. Mr. Erickson observed that some of these chemicals are discharged directly to surface waters via wastewater treatment plant discharges and thus there is a greater potential for contamination of surface waters than ground waters. Mr. Czarkowski recommended that the potential for groundwater contamination be noted as a significant concern. He noted that sources of contamination were not discussed in this context, and should be. Mr. Bauer recommended, and it was generally agreed, to modify the text accordingly.

[Secretary’s Note: The revised text is included in the revised copy of Chapter III attached to these minutes.]

Ms. Lewis referred to the section of the report on Auxiliary Facilities and Requirements on page 20. She recommended, and it was generally agreed, to add a section on on-line monitoring and supervisory control and data acquisition systems (SCADA systems) to that section.

[Secretary's Note: The additional text is included in the revised copy of Chapter III attached to these minutes.]

Mr. Marchese referred to Table III-2 and III-3 on pages 21 and 22, and asked if these tables represented summary data from the cost curves to be provided in an appendix. Mr. Schultz indicated in the affirmative. Mr. Bauer noted that it will be important too recheck these two tables once the cost curves are finalized and refined to reflect the comparison to other sources of cost data as recommended in the previous deliberations.

There being no further questions or comments, on a motion by Ms. Lewis, seconded by Dr. Bradbury, and carried unanimously, Chapter III "Surface Water Treatment Technologies" of SEWRPC Planning Report No. 43, *State-of-the-Art of Water Supply Practices*, was approved as amended.

CONSIDERATION OF CHAPTER IV, "GROUNDWATER WITHDRAWAL AND TREATMENT TECHNOLOGIES," OF SEWRPC TECHNICAL REPORT NO. 43

Chairman Bauer asked the Committee to consider Agenda Item 5. He noted that all Committee members had received a copy of Chapter IV, Groundwater Withdrawal and Treatment Technologies of SEWRPC Technical Report No. 43, *State-of-the-Art of Water Supply Practices* for review prior to the meeting. He then asked Mr. Schultz to review the Chapter with the Committee on a page-by-page basis.

Dr. Bradbury referred to the section of the report entitled, "Well Water Geology" on pages 2 through 4. He noted that the section contained some terminology which was different than that included in Chapter III of SEWRPC Planning Report No. 52, A Regional Water Supply Plan for Southeastern Wisconsin. It was agreed that the staff would check and make the terminologies used in the two reports consistent. Dr. Bradbury subsequently provided additional details on ways to provide for consistency in the description of the geology in Chapter IV of SEWRPC Planning Report No. 52.

[Secretary's Note: A revised copy of Chapter IV indicating the changes requested by the Committee including revisions to the well water geology section is attached to these minutes.]

Dr. Cherkauer referred to the third to last sentence in the fourth full paragraph on page 3. He recommended, and it was generally agreed, that the word "disappears" be changed to the term "pinches out". He also recommended, and it was generally agreed, to change the word "saline" to "brackish" in the last sentence of the fifth full paragraph on page 3. Dr. Cherkauer noted the difference in quality between brackish and saline water in terms of dissolved solids concentrations. It was also agreed to add a reference to the text regarding the statement on brackish water in the fifth paragraph on page 3. These changes were duly noted.

Mr. Biebel noted that the written comments submitted by Mr. Helmuth referred to the fifth line in the fourth paragraph on page 4, and recommended that it be made clear that the steel casing pipe was continuous. He also referenced the sixth line and recommends the word "granite" be replaced with the words "silicon-based rock, gravel, or coarse sand". These changes were duly noted.

Dr. Cherkauer referred to the third paragraph on page 4, and recommended that heading be changed to read "Typical High Capacity Well Design and Construction". The Committee agreed.

Mr. Biebel noted that the written comments submitted by Mr. Helmuth referred to the first sentence in the fifth paragraph on page 4, and recommends that the term "through the rock" be revised to "into the bedrock aquifer". The change was duly noted.

Mr. Rau referred to the section entitled, "Conventional Groundwater Treatment Needs" on page 5 and noted that the constituents noted were generally not significant concerns with respect to surface waters. Thus, the municipal and private costs involved in treating groundwater for these constituents were an important factor in evaluating alternative sources of supply. Mr. Grisa agreed, noting that the private costs for softening of groundwater was an important consideration for communities evaluating alternative sources.

[Secretary's Note: The following sentence was added at the end of the sixth paragraph on page 5: "These treatment processes may result in costs to the private homeowner -- particularly water softening treatment costs -- which are not typically experienced when using surface water as a source of supply."]

Mr. Grisa referred to the sixth paragraph on page 5 and recommended that iron removal be added to the listing of processes. Mr. Schultz recommended, and it was agreed, to add the term, "iron pressure or gravity filtration" to the list of processes.

Dr. Bradbury referred to the report section on non-treatment options on page 6. He noted that these options were applicable to a number of the contaminants. He recommended, and it was agreed, to move the non-treatment options as a first order heading to a new location ahead of the first order heading "Treatment Technology Process Descriptions and Costs" on page 13.

Mr. Biebel noted that the written comments submitted by Mr. Helmuth referred to the listing of arsenic technologies on the top of page 6, and recommended adding well reconstruction and finding a new water source as additional options. The changes were duly noted.

Mr. Biebel noted that the written comments submitted by Mr. Helmuth referred to the section on ion exchange on page 6, and recommended that the text state the arsenic speciation tests be made to determine which ion is present.

[Secretary's Note: In response to this comment, the following sentence was added following the fifth sentence in the paragraph on ion exchanges on page 6: "Arsenic speciation tests are needed to determine which form of arsenic is present."]

Mr. Grisa referred to the section on "Radionuclide Treatment" beginning on page 7. He noted that the first two sentences were duplicative and recommended that these two sentences be deleted. The recommended changes were agreed to.

Mr. Rau noted that point of use treatment had been used in Madison for manganese. Mr. Schultz agreed to add that treatment option to the section on "Point of Use Treatment" on page 17.

Mr. Grisa recommended, and it was agreed, that a section on pH adjustment should be added under the arsenic treatment technologies.

{Secretary's Note: A section on pH adjustment is included in the revised copy of Chapter IV attached to these minutes.}

Mr. Grisa referred to the section on best available technologies for radionuclide treatment on page 8, and to Table VI-2 on page 10. He recommended, and it was agreed, to include references to and descriptions of the processes which had been pilot tested locally. These included the WRT and the Layne selected resin processes.

[Secretary's Note: The text and table concerned have been expanded to include references to these locally tested processes. The revisions are included in the revised Chapter IV attached to these minutes.]

Mr. Bunker asked about the disposal cost for the treatment media used in these processes. Mr. Grisa stated that in the case of the system to be used in Brookfield, the operation and maintenance cost, including media disposal and replacement, have been established to be \$0.30 per 1000 gallons of water treated.

[Secretary's Note: The section on costs on page 14 has been expanded to include information on media disposal.]

Mr. Marchese requested that summary cost tables be added to the chapter similar to those which were included for the surface water treatment technologies in Chapter III. Chairman Bauer stated that this would be done.

[Secretary's Note: A summary cost table has been added and is included in the revised copy of Chapter IV attached to these minutes.]

Ms. Conley asked if the use of rainwater treatment should be considered. Mr. Schultz responded that such use could be appropriate for non-consumptive uses. He indicated that such systems could be described in Chapter V, which chapter is to consider small area and individual water supply systems.

There being no further questions or comments, on a motion by Mr. Duchniak, seconded by Mr. Ericson, and carried unanimously, Chapter IV, Groundwater Withdrawal and Treatment Technologies of SEWRPC Planning Report No. 43, *State-of-the-Art of Water Supply Practices*, was approved as amended.

OTHER BUSINESS

Mr. Grisa asked if a replacement would be provided for Mr. Gryz, City of New Berlin Director of Utilities, who has retired. Chairman Bauer indicated that the decision as to whether or not to replace Mr. Gryz as a Committee member was the prerogative of the Commission.

DATE AND TIME OF NEXT MEETING

After a brief discussion, the next meeting of the Advisory Committee was tentatively scheduled to be held in the Commission offices on June 7, 2006, beginning at 9:00 a.m.

ADJOURNMENT

There being no further business to come before the Committee, on a motion by Ms. Anderson, seconded by Mr. Kiekhaefer, and carried unanimously, the meeting was adjourned at 4:50 p.m.

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