

**SUMMARY NOTES OF THE AUGUST 27, 2025, MEETING OF THE  
TECHNICAL ADVISORY COMMITTEE FOR  
A CHLORIDE IMPACT STUDY FOR THE SOUTHEASTERN WISCONSIN REGION**

**INTRODUCTION**

The August 27, 2025, meeting of the Technical Advisory Committee (TAC) for *A Chloride Impact Study for the Southeastern Wisconsin Region* (Study) was convened online at 10:02 a.m. The meeting was called to order by Committee Chairman Thomas M. Grisa, Director of Public Works, City of Brookfield. Mr. Grisa welcomed the attendees to the meeting. Attendance was taken using the online software.

**Members Present**

Thomas M. Grisa, Chairman.....Director, Department of Public Works, City of Brookfield  
Laura K. Herrick, Secretary ..... Chief Environmental Engineer, SEWRPC  
Mandy Bonneville.....Deputy Director, County Conservationist, Walworth County  
Cody Churchill.....Winter Maintenance Engineer, WisDOT  
David J. Hart.....Hydrogeologist, Wisconsin Geological and Natural History Survey  
Richard Hough..... Director of Public Works, Walworth County  
Samantha J. Katt ..... Urban Stormwater Specialist, Wisconsin Department of Natural Resources  
Kevin J. Kirsch..... Water Resources Engineer, Wisconsin Department of Natural Resources  
Scott Kroeger ..... Director, Public Works and Development, City of Muskego  
Max Marechal.....City Engineer, Engineering Department, City of West Bend  
Cheryl Nenn..... Riverkeeper, Milwaukee Riverkeeper  
Neal T. O'Reilly .....Director, Department of Conservation and Environmental Science, UWM  
Charles J. Paradis ..... Assistant Professor, Department of Geosciences UWM  
Kurt Sprangers..... Engineer in Charge, Department of Public Works, City of Milwaukee  
David Striffling..... Director, Water Law and Policy Initiative, Marquette University Law School

**Guests and Staff Present**

Joseph E. Boxhorn ..... Guest, SEWRPC Retired  
Karin M. Hollister..... Principal Engineer, SEWRPC  
Collin A. Klaubauf..... Engineer, SEWRPC  
James M. Mahoney ..... Engineer, SEWRPC  
Aaron W. Owens.....Principal Planner, SEWRPC  
Justin P. Poinsett ..... Principal Specialist, SEWRPC  
Emily E. Porter..... Planner, SEWRPC  
Thomas M. Slawski .....Chief Biologist, SEWRPC

Ms. Herrick introduced the presenters and the agenda for the meeting to review portions of SEWRPC Technical Report No. 63, *Chloride Conditions and Trends in Southeastern Wisconsin*.

[Secretary's Note: The agenda for this meeting is attached herein as Exhibit A.]

**REVIEW OF THE SUMMARY NOTES FROM THE NOVEMBER 13, 2024,  
TECHNICAL ADVISORY COMMITTEE MEETING**

Ms. Herrick asked the TAC for any comments or edits for the Summary Notes from the November 13, 2024, TAC meeting. That meeting reviewed draft Chapters 1, 2 (part), and 5 (part) of Technical Report No. 63, *Chloride Conditions and Trends in Southeastern Wisconsin*, and draft Chapters 1 and 3 of Technical

Report No. 66, *State of the Art in Chloride Management*. TAC members offered no questions or comments on the Summary Notes.

## **REVIEW OF A PART OF SEWRPC TECHNICAL REPORT NO. 63, *CHLORIDE CONDITIONS AND TRENDS IN SOUTHEASTERN WISCONSIN***

### **TR-63 Chapter 2 Study Area Background**

Ms. Herrick presented an overview of the Chapter 2 Sources section, which discussed the natural and anthropogenic sources of chloride reviewed in the Study and their contribution as major or minor sources of chloride to the environment. Mr. Slawski next discussed the methodology used to determine chloride thresholds utilized in this Study. He stated that chloride concentrations from the literature reviewed in TR-62 ranged from 10 mg/l to greater than 1,400 mg/l. Mr. Slawski noted that different thresholds were selected to assess the observed chloride concentration impacts on aquatic ecosystems.

Mr. Grisa asked if the background concentration of chloride without human contributions is known. Mr. Slawski stated that a background chloride concentration of 10 mg/l and less was a reasonable concentration in the absence of human activity. Mr. Poinatte added that a study by Birge and Juday in the early 1900s presented background chloride concentrations in the Region between 3 to 10 mg/l with no human contributions. TAC members offered no other questions or comments for the remaining sections of draft Chapter 2.

### **TR-63 Chapter 3 Analysis of Monitoring Data Collected for the Chloride Impact Study: 2018-2021**

Mr. Poinatte presented the analysis of monitoring data collected by Commission staff during the study period. He commenced with an overview of the stream monitoring sites and the methodology used to collect the chloride and specific conductance data. Mr. Poinatte discussed climate conditions and documented weather data for the study period. He then discussed a summary of the estimated chloride data that was based on continuous specific conductance measurements and introduced the major site groups delineated by watershed type and chloride levels.

Mr. O'Reilly asked if there was a Study monitoring site that did not have any human influence with respect to chloride concentration that could be used as a reference site. Mr. Poinatte responded that none of the monitoring sites have levels low enough to indicate no human impact, however Group #5 (Streams with Rural Watersheds, No Winter Spikes, and Low Chloride) would be the closest. Mr. O'Reilly followed up by asking if there were any reference sites outside the Region that could serve as a baseline site. Mr. Poinatte responded that we did not look at that for this Study, however a lot of data is being collected outside the Region, and some northern streams with much lower chloride concentrations may be a good reference.

Mr. Kirsch asked if the cause was known for the dilution of chloride and consequent reduction in chloride concentration at Site 45 (Mukwonago River at Nature Road). Mr. Poinatte responded that the drainage area to this monitoring site is rural and that the dilution in chloride concentration may be caused by rain events or by groundwater. Mr. Poinatte acknowledged that there could be additional reasons that caused the stream chloride concentrations to drop.

Mr. Poinatte presented a plot showing estimated chloride concentration over 4 days during the study period on Lincoln Creek, which showed a rapid spike in chloride concentration immediately following a winter rain event. Mr. O'Reilly commented that this rapid change has significant implications for aquatic life. He stated that such a rapid and large swing in chloride concentrations can be problematic for aquatic life, even if concentrations remain below the State chronic toxicity threshold. Mr. Slawski agreed and responded that

biological impacts via the thresholds established for the Study were summarized throughout the TR-63 report.

Mr. Kirsch asked if the chloride concentration trends shown for stream responses after heavy summer rains could be related to chloride levels trapped in sediment. Mr. Poinatte responded that chloride typically moves with water and that groundwater levels were likely raising stream chloride levels after a rain. TAC members offered no other questions or comments for draft Chapter 3.

#### **TR-63 Chapter 4 Chloride Conditions and Trends: Rivers and Streams**

Mr. Owens next presented chloride conditions and trends for rivers and streams using the available dataset from 1961-2022. He discussed the sources of data, the data processing procedures, and the application of the data for the Study. He presented the methodology used to develop assessment reaches, which were used to analyze the data across the study area. Mr. Owens presented two study periods for assessing water quality data in this Chapter: the full (historical) record from 1961 to 2022 and the recent period from 2013 to 2022. Mr. Owens then showed plots, maps, and tables to present the data and the major findings from this analysis.

Ms. Nenn commented via the TEAMS chat that a portion of the data collected at sites attributed to the WDNR were actually collected by Milwaukee Riverkeeper volunteers. She noted that the WDNR Surface Water Integrated Monitoring System (SWIMS) database does not make that clear, but that it would be appreciated if the organization could be acknowledged on those specific maps and tables in the TR-63 report. Mr. Owens indicated he would follow up with her via email. TAC members offered no other questions or comments for draft Chapter 4.

[Secretary's Note: Milwaukee Riverkeeper was already listed as a source on applicable tables and figures for the Milwaukee River, Menomonee River, and Kinnickinnic River watersheds. In addition to these citations, Milwaukee Riverkeeper was added as a source for applicable tables and figures for the Oak Creek and Root River watersheds. For watershed maps showing locations of monitoring stations, a note was added indicating that Milwaukee Riverkeeper collected data at some of the monitoring sites labeled as "WDNR SWIMS." This includes Maps 4.45, 4.58, 4.71, 4.84, and 4.131.]

#### **TR-63 Chapter 6 Chloride Conditions and Trends: Groundwater**

Mr. Poinatte began the review of Chapter 6. He provided an overview of groundwater and the sources of chloride entering groundwater. Mr. Poinatte presented the sources of data used in this analysis along with the framework and methodologies for the assessment. He then presented plots and maps to show the major findings from the analysis.

In reference to a graph showing chloride variability in shallow wells over time, Mr. Hart commented that the chloride concentration did not seem to have a lot of variability to him and that he was surprised by how well the levels correlate to each other. Mr. Poinatte noted that chloride concentration trends varied by 46% and the variability was increasing.

Mr. Grisa commented that he was surprised to see the natural background chloride concentrations in groundwater at 20 mg/l when the natural background chloride concentration in streams was 10 mg/l. Mr. Poinatte noted that the 20 mg/l came from a Kammerer paper and may provide a buffer for background conditions.

Ms. Herrick completed the Chapter 6 discussion with a review of chloride concentrations and trends in municipal wells between 1977 and 2025. Municipal well data did have better historical chloride levels to review for trends. She presented a plot showing the entire municipal well dataset with chloride concentration verses well depth. From this plot it was determined for this Study to define a shallow well as less than 300 feet deep and a deep well as one with a depth greater than 700 feet.

Ms. Nenn asked if shallow wells with increasing chloride concentrations were assessed for soil depth, type, and karst. Ms. Herrick responded that this was not included in the municipal well assessment because the exact location of municipal wells was not available. Mr. Poinatte added that there is more context for some shallow wells and that some show seasonal trends and other surface water-like chloride trends. TAC members offered no other questions or comments for draft Chapter 6.

## **NEXT STEPS FOR THE PLAN**

Ms. Herrick stated that comments will be taken on the draft TR-63 chapters reviewed during this TAC meeting until September 19, 2025. She added that comments on the draft TR-63 text can also be submitted through the Study webpage at [www.sewrpc.org/chloride-study](http://www.sewrpc.org/chloride-study) or via email ([lherrick@sewrpc.org](mailto:lherrick@sewrpc.org)).

Ms. Herrick reviewed the next steps for the Study. She stated that the next TAC meetings will be this fall and consist of a review of the remainder of TR-63 (Chapter 5 Lakes) and TR-65, which documents the chloride mass balance analysis. She indicated that meeting presentations and summary notes along with draft chapters from this meeting will be posted on the SEWRPC project website at [www.sewrpc.org/chloride-study](http://www.sewrpc.org/chloride-study).

## **ADJOURNMENT**

There being no further business, the meeting was adjourned by unanimous consent at 12:00 p.m.

Respectfully submitted,

Laura Herrick  
Recording Secretary

## **Exhibit A**

Southeastern Wisconsin Regional Planning Commission

### **Notice of Meeting and Agenda**

#### **TECHNICAL ADVISORY COMMITTEE FOR *A CHLORIDE IMPACT STUDY FOR THE SOUTHEASTERN WISCONSIN REGION***

DATE: Wednesday, August 27, 2025

TIME: 10:00 am to Noon

#### TEAMS LINK

[Join the meeting now](#)

Meeting ID: 229 653 288 005 4

Passcode: 4Sy9oF3E

#### AGENDA:

1. Roll call
2. Review of summary notes from the November 13, 2024, TAC meeting
3. Review of a portion of **SEWRPC Technical Report No. 63, Chloride Conditions and Trends in SE Wisconsin**
  - a. Chapter 2 – Study Area Background (part)
  - b. Chapter 3 – Analysis of Monitoring Data Collected for the Chloride Impact Study: 2018-2021
  - c. Chapter 4 – Chloride Conditions and Trends: Rivers and Streams
  - d. Chapter 6 – Chloride Conditions and Trends: Groundwater
4. Next steps
5. Adjourn

Laura K. Herrick  
Chief Environmental Engineer