Annual Report for Year 3 (2024-2025) of the Time Limited Water Quality Standard for Chloride

July 1, 2025

Prepared by The Metropolitan Water Reclamation District of Greater Chicago

Chicago Area Waterways
CHLORIDE WORKGROUP

LOWER DES PLAINES
WATERSHED GROUP

The Metropolitan Water Reclamation District of Greater Chicago is a member of the Chicago Area Waterways Chloride Workgroup and Lower Des Plaines Watershed Group

1.0 Introduction

This Annual Report has been prepared by the Metropolitan Water Reclamation District of Greater Chicago to report on progress in meeting the requirements for the Time Limited Water Quality Standard for Chloride. The Metropolitan Water Reclamation District of Greater Chicago is a discharger covered under the Time Limited Water Quality Standard for Chloride for the Chicago Area Waterways System and Lower Des Plaines River watersheds. This Annual Report has been prepared to meet the requirements laid out in the Time Limited Water Quality Standard (TLWQS) for Chloride.

Chloride does not degrade over time and continues to accumulate in the environment. Proactive measures to reduce the amount of chloride discharged can help reduce the impacts from chloride on receiving waterways and the environment. Chloride impacts aquatic life, vegetation, and infrastructure. As the chloride concentrations increase and our waters become saltier, aquatic and plant biodiversity decreases and native species are overtaken by salt tolerant invasive species.

Chlorides are commonly found in road salt, fertilizers, water softeners, dust suppressants, and certain industrial processes. Chloride-based deicers, like rock salt, are used on parking lots, sidewalks, and roads to provide safe surfaces to the public during the winter months. These deicers are one of most common sources of chloride in the Chicago region.

The water quality standard for chloride for the Chicago Area Waterway System (CAWS) was updated as part of the rulemaking process related to changing the designated use of the CAWS. The chloride standard was updated from 1,500 mg/L during the winter and 500 mg/L during the summer to 500 mg/L all year round. The change in the chloride water quality standard took effect in 2018. Because portions of the CAWS were not going to meet this new standard due to the need to maintain public safety on roads, highways, sidewalks and parking lots during the winter months, a joint submittal and supporting individual petitions were submitted between 2015 and 2018 to the Illinois Pollution Control Board for a variance from the chloride standard. The joint petition laid out best management practices that can be achieved by the petitioners to reduce their chloride use while maintaining public safety during winter storms. In addition to the CAWS, portions of the Lower Des Plaines River watershed were included as it receives water from the CAWS.

On November 4, 2021, the IPCB issued an Opinion and Order for a Time Limited Water Quality Standard (TLWQS) for Chloride for portions of the CAWS and Lower Des Plains River watersheds. The TLWQS for Chloride watersheds are defined in the Opinion and Order as the Des Plaines River watershed from the Kankakee River to the Will County Line (except for the DuPage River watershed) and the CAWS watershed (except the North Branch Chicago River watershed upstream of the North Shore Channel and those portions of the watershed located in Indiana). This is a watershed-based approach to reduce the chloride concentrations in the CAWS and Lower Des Plaines River. The TLWQS for Chloride requires all dischargers covered under the TLWQS for Chloride to create PMPs and implement specific best management practices based on their operations to reduce their chloride discharges.

2.0 Organization, Facility Information

Agency Name: The Metropolitan Water Reclamation District of Greater Chicago		
Facility Name: Calumet WRP		Permit Number: IL0028061
Facility Address: 400 E 130th St.		
City: Chicago	State: IL	Zip Code: 60628

The Metropolitan Water Reclamation District of Greater Chicago is located primarily within the boundaries of Cook County, Illinois, serving an area of 883.5 square miles, which includes the City of Chicago and 128 suburban communities. The District serves an equivalent population of 12.72 million people: 5.16 million real people, a commercial and industrial equivalent of 5.32 million people, and a combined sewer overflow equivalent of 2.24 million people. The District operates seven automated water reclamation plants to treat over 500 billion gallons of wastewater annually and is considered a world leader in wastewater treatment facilities. Wastewater is collected from municipalities and conveyed to the WRP's through a 554-mile network of intercepting sewers, ranging in size from 6 inches to 27 feet in diameter, with the assistance of 23 pumping stations located throughout this network. The water flowing through the Lockport Powerhouse is harnessed by two turbines to provide a safe and environmentally friendly hydroelectric energy source that is sold back to Commonwealth Edison.

The Calumet Water Reclamation Plant (CWRP) is the oldest of the seven MWRD water treatment facilities. It was built in 1922 and at that time, the WRP served a population of approximately 155,000 that comprised residences and businesses in the southern portion of Cook County. A century later, the Calumet WRP now serves a population of more than 1 million in an area of about 300 square miles. The Calumet WRP receives combined sewer flow (sanitary plus stormwater flow) from the interceptors but also combined sewer flow from the Calumet Tunnel System and the Thornton Composite Reservoir (active on November 2015). These systems are part of the Tunnel and Reservoir Plan (TARP). With a design average flow of 354 million gallons per day (MGD) and a design maximum flow of 430 MGD, the Calumet WRP treats wastewater flow through traditional preliminary treatment with screens and grit removal, primary treatment, secondary treatment, and tertiary treatment (as of 2015) which consists of disinfection.

2.1 Level of Service for Winter Maintenance Activities

The Truck Driver Foreman and the Building and Grounds Labor Foreman are responsible for initiating snow removal during the day. The TPO shall be responsible for initiating all snow removal activities to be performed outside of normal working hours by contacting the truck driver foreman.

When snowfall is forecasted to begin on the morning before a regular working day or any conditions when the TPO III wants to mobilize the snow removal crew, the TPO may notify the Truck Driver Foreman and Building and Grounds Foreman as early as possible.

The following snowfall depth levels have been identified and shall serve as guidelines for snow removal resource allocation:

Level 1: Up to 4" Snowfall

2 - Dump trucks equipped with salt spreader

2- Pick-Up Trucks equipped with salt spreaders

2 - Hoister with heavy equipment if needed
Labor Crew (5 Laborers and 1 Labor Foremen)

Level 2: 4”-6” Snowfall
2 - Dump trucks equipped with salt spreaders
2- Pick-Up Trucks equipped with salt spreaders
2 - Hoisters with heavy equipment
Labor Crew (6 Laborers and 1 Labor Foremen)

Level 3: 6”+ Snowfall
2 - Dump trucks equipped with salt spreaders
2- Pick-Up Trucks equipped with salt spreaders
2 - Hoisters with heavy equipment
Labor Crew (7 Laborers, 1 Truck Driver, and 1 Labor Foremen)

Level 4: Snow, Freezing Rain, Ice, and Sleet Hazardous Condition
2 - Dump trucks equipped with salt spreaders
2- Pick-Up Trucks equipped with salt spreaders
Labor Crew (5 Laborers, 1 Truck Driver, and 1 Labor Foremen)
1 or 2 – Hoisters as needed

3.0 Best Management Practices

Details regarding the Metropolitan Water Reclamation District of Greater Chicago’s implementation of the best management practices (BMPs) identified as part of the TLWQS for Chloride are included below.

Workgroup BMP

BMP	Agency Description of Current Implementation or Status Update to the Plan to Implement the BMP
The permittee must participate in a Chlorides workgroup for the CAWS or LDPR, depending on the watershed within which the facility’s discharge is located.	We are a member of the Lower Des Plaines Watershed Group and Chicago Area Waterways Chloride Workgroup.

Salt Storage and Handling BMPs

BMP	Agency Description of Current Implementation or Status Update to the Plan to Implement the BMP
Store all salt on an impermeable pad that must be constructed to ensure that minimal stormwater is coming into contact with salt unless the salt is stored in a	The salt is stored on an impermeable asphalt pad.

container that ensures stormwater does not come into contact with the salt.	
Cover salt piles at all times except when in active use, unless stored indoors.	Salt storage area is permanently covered.
For working areas, provide berms and or sufficient slope to allow snow melt and stormwater to drain away from the area. If snow melt and stormwater cannot be drained away from the working area, channeling water to a collection point such as a sump, holding tank or lined basin for collection, discharge at a later time, use for prewetting, and use for make-up water for brine must be considered.	The pad is sloped away from the salt pile to prevent runoff.
MS4/CSO Only - Use deicing material storage structures for all communities covered under General Permit ILR40 for MS4 communities.	Not Applicable
Good housekeeping practices must be implemented at the site, including: • cleanup of salt at the end of each day or conclusion of a storm event; • tarping of trucks for transportation of bulk chloride; • maintaining the pad and equipment; • good practices during loading and unloading;	At every conclusion of a storm event, labor crews clean and palleted bags of salt, wrapped and store them with the snow removal equipment. Whereas truck drivers swept and returned spilled salt to the stockpile during operation. Not Applicable: Bulk salt is being delivered to site by the vendor. Salt spreader and snow blower equipment are maintained regularly by cleaning and inspecting them after use and doing repairs as necessary. We ensure safety protocols are being followed and implemented. We keep the truck's container and unloading areas clean and free of foreign objects as such could damage spreaders and could occasionally get into salt.

• cleanup of loading and spreading equipment after each snow/ice event;	After each snow event, all equipment (e.g., snow blowers and walk behind salt spreaders) used are cleaned and kept in good shape.
• a written inspection program for storage facility, structures and work area;	A written inspection program will be made and implemented in the future.
• removing surplus materials from the site when winter activity finished where applicable;	Any surplus materials used in the snow removal are removed from the site and stored in an enclosed area for future use.
• annual inspection and repairs completed when practical;	An annual inspection of the snow blower equipment is carried out and repairs are done if necessary.
• evaluate the opportunity to reduce or reuse the wash water.	Plans are being looked at to partially collect wash water for reuse to make brine, in the future.

Winter Maintenance Operations BMPs

BMP	Agency Description of Current Implementation or Status Update to the Plan to Implement the BMP
Calibrate all salt spreading equipment at least annually before November 30th. Records of the calibration results must be maintained for each piece of spreading equipment.	Salt spreading equipment is calibrated before the start of the winter season.
Pre-wet road salt before use, either by applying liquids to the salt stockpile, or by applying liquids by way of the spreading equipment as the salt is deposited on the road.	All the trucks used have sprayers installed to pre-wet the salt they are spreading before the start of the season.
Use equipment to measure the pavement temperature unless such equipment has already been installed on road salt spreading vehicles.	All trades have the capability of measuring pavement temperatures using infrared thermometer gun.

Develop and implement a protocol to vary the salt application rate based on pavement temperature, existing weather conditions, and forecasted weather conditions.	Refer Appendix 2.
Track and record salt quantity used and storm conditions from each call-out.	Salt usage and storm conditions are tracked on a district worksheet.
Develop a written plan for implementation of anti-icing, with milestones. The plan should consider increased use of liquids (e.g., carbohydrate products) beginning with critical locations such as bridges over streams.	This will be developed in the future.
Provide employees involved in winter maintenance operations with annual training before November 30th on best management practices in the use of road salt in operations, including the practice of plowing first and applying salt only after snow has been cleared.	Training is performed annually in the Fall.
Be responsible for complying with all applicable BMPs even when deicing practices are contracted out and ensure that contractors are property trained and comply with all applicable BMPs.	If contracted, contractors must comply with District policies.
Complete an annual report, as required by paragraph 3(B) of this order, which is standardized in an electronic format and submitted to the IEPA's website and to the watershed group.	MWRD Tech Projects will submit reports annually to IEPA and CAWCW.

Obtain and put into place equipment necessary to implement all salt spreading/deicing measure specified in this BMP, such as any new or retrofitted salt spreading equipment necessary to allow for pre- wetting and proper rates of application.	CWRP will implement BMPs and budget for any new equipment, as needed.
MS4/CSO/IDOT/TOLLWAY Only - Install equipment to measure the pavement temperature on the winter maintenance fleet for a sufficient number of vehicles to provide sufficient information to adjust application rates for the most efficient levels. Develop and complete a plan to equip the winter maintenance fleet before the first re-evaluation.	Not Applicable
MS4/CSO/IDOT/TOLLWAY Only - Before the first re-evaluation, develop a method for conducting a post-winter review to identify areas of success and areas in need of improvement. Items to be completed as part of the review must include, but are not limited to, an evaluation of each salt spreader's application rate, variations in application rates, and discussion of the variation compared to the recommended rates. Once developed, the review should occur annually in the spring/early summer following each winter season.	Not Applicable

3.1 Analysis of BMPs Implemented

We were able to make the changes we set out to achieve in our BMPs. Staff did not report any unexpected difficulties in deicing activities, and they have an easier time working with the road salt application. In addition, having a covered storage for road salt is cost-efficient as well as reduces the environmental impact.

3.2 Analysis of Alternative Treatments or New Technology

Our trucks' salt spreaders are now retrofitted with pre-wetting capabilities that allow us to decrease the amount of dry salt we are using and thereby decrease our total chloride usage.

4.0 Deicing/Anti-Icing Agents Used

Materials used by the Metropolitan Water Reclamation District of Greater Chicago for the 2024-2025 winter season are included as Appendix 1.

4.1 Application Rates

The application rates used by the Metropolitan Water Reclamation District of Greater Chicago for the 2024-2025 winter season are included as Appendix 2.

4.1.1 Application Rate Analysis

Due to the implementation of better BMPs and using brine for pre-wetting, we drastically decreased the amount of salt used.

4.2 Application Practices

The Metropolitan Water Reclamation District of Greater Chicago uses the following practices to apply deicing and anti-icing materials:

- Deicing using pre-wetted salt from salt spreader trucks and dry/wet/pretreated salt from walk-behind spreaders.

4.3 Call Outs

A total of eighteen (18) inches of snow was reported at the Calumet Water Reclamation Plant for the 2024-2025 winter. There was one (1) freezing rain event and sixteen (16) snow events for the 2024-2025 winter. The Metropolitan Water Reclamation District of Greater Chicago had twenty-nine (29) call outs completed during the 2024-2025 winter. A log of all call outs completed is included as Appendix 3.

4.4 Use of Liquids

Brine was used to prewet the salt that was put down during the 2024-2025 winter season.

5.0 Training

The Metropolitan Water Reclamation District of Greater Chicago - CWRP completed annual training for employees who are part of the winter maintenance operations during the fall of 2024. A list of annual training topics by type of employee is included as Appendix 4.

6.0 Deicing and Snow Removal Equipment and Maintenance

The Metropolitan Water Reclamation District of Greater Chicago uses equipment listed in Appendix 5 during winter maintenance activities.

6.1 Description of Equipment Washing and Wash Water Collection

Plans are being looked at to partially collect wash water for reuse to make brine, in the future.

7.0 Material Storage

The Calumet Water Reclamation Plant maintains 1 storage area. Information regarding the storage area(s) is included in Appendix 6.

8.0 Capital Purchases

Identified capital purchases from the Metropolitan Water Reclamation District of Greater Chicago's PMP to implement the BMPs and reduce chlorides in our operations over the first 5-year term of the Chloride TLWQS are included as Appendix 7.

9.0 Environmental Monitoring Data

Chloride monitoring data is collected for the CAWS and Lower Des Plaines River watersheds per the IPCB order. The data is maintained by the workgroups. Chloride data for the CAWS is collected by MWRD for the CAWS watershed and provided to the workgroups as part of the annual reporting as required by the IPCB order. The Lower Des Plaines Watershed Group also maintains a USGS monitoring station in the Des Plaines River at Channahon, IL that collects continuous conductivity data to estimate chloride concentrations.

Chloride monitoring data reports are posted to https://www.cawswatershed.org/reports/ and https://ldpwatersheds.org/about-us/lower-des-plaines-watershed-group/our-work/chloride-tlwqs/.

9.1 Organization Specific Chloride Monitoring Data

The Metropolitan Water Reclamation District of Greater Chicago collects chloride monitoring data as part of its NPDES effluent data and the data is included as Appendix 8.

9.2 Changes to the Facility's NPDES Treatment Technologies for Chloride

No changes were made.

10.0 Program Evaluation

As we go through the upcoming winter, we will be reviewing our callout information, developing a plan on how to adjust our application practices, implementing it, evaluating the results, and repeating those steps to continue improving our process.

10.1 Proposed Steps for the Coming Year

For the past seasons, we achieved our goals of transitioning to using pre-wet salt instead of dry salt and purchased the necessary tools to measure the pavement temperatures. We are considering applying deicing products more efficiently, and anti-icing is being looked into in the future.

11.0 Workgroup Participation

The MWRD is a member of the CAWS Chloride Workgroup. MWRD attends and participates in quarterly membership meetings, sends staff to Winter Deicing Workshops, and submits annual reports to the workgroup.

Organization Name: Metropolitan Water Reclamation District of Greater Chicago

Chloride TLWQS Annual Report
Appendix 1 - Deicing/Anti-Icing Agents Used

Material or Product	Dry, Pre-Wet, Pretreated, or Liquid	Lane Miles Treated with the Product for 2022-2023	Parking Lot and Sidewalk Area (Sq. Ft.) Treated with the Product for 2022-2023	Lane Miles Treated with the Product for 2023-2024	Parking Lot and Sidewalk Area (Sq. Ft.) Treated with the Product for 2023-2024	Lane Miles Treated with the Product for 2024-2025	Parking Lot and Sidewalk Area (Sq. Ft.) Treated with the Product for 2024-2025	Total Amount used for 2022-2023 (Year 1) in Tons or Gallons	Total Amount used for 2023-2024 (Year 2) in Tons or Gallons	Total Amount used for 2024-2025 (Year 3) in Tons or Gallons	Total Amount used for 2025-2026 (Year 4) in Tons or Gallons	Total Amount used for 2026-2027 (Year 5) in Tons or Gallons	Total Amount Used Over First 5-Year Term
Rock Salt	Dry	17.50	45,700.00	0.00	20,500.00	0.00	38,450.00	82.31 Tons	0.03 Tons	0.60 Tons			82.94 Tons
Rock Salt	Pre-Wet			17.50	45,700.00	1.00	5,660.00		3.30 Tons	0.82 Tons			4.12 Tons
Brine	Liquids			17.50	45,700.00	10.00	11,000.00		505.00 Gallons	136.50 Gallons			641.50 Gallons

Estimates of Relative Material Amounts Applied and Coverage Achieved

Year	Total Lane Miles Maintained	Total Parking Lot and Sidewalk Area (Sq. Ft.) Maintained	Percent of Total Lane Miles Treated with Dry Materials	Percent of Total Lane Miles Treated with Pre-Wet or Pretreated Materials	Percent of Total Lane Miles Treated with Liquids	Percent of Total Parking Lot and Sidewalk Area Treated with Dry	Percent of Total Parking Lot and Sidewalk Area Treated with Pre-wet or Pretreated Materials	Percent of Total Parking Lot and Sidewalk Area Treated with Liquids
2022-2023	17.50	45,700.00	100%	0%	0%	100%	0%	0%
2023-2024	17.50	45,700.00	0%	100%	100%	45%	100%	100%
2024-2025	11	55,110.00	0%	9%	91%	70%	10%	20%

APPENDIX 2

CHLORIDE ROAD APPLICATION RATES

Type 1 Winter Event: More than 12 inches of snow in 24 hours OR more than ¾ inch of ice

Pavement Temperature Range and Trend	Maintenance Action	Pre-wetted Salt Application Rate (lb/lane-mile)	Calibrated Spreader Setting	Comments
Above 32 F, steady or rising	None, see comments			1) Monitor pavement temperature closely for drops toward 32 F and below 2) Treat slick patches if needed with pre-wetted salt at 100 lb/lane-mi; plow if needed.
Above 32 F, below 32 F is imminent	Apply pre-wetted salt	100		If the desired plowing/treatment frequency cannot be maintained, the spread rate can be increased to 200 lb/lane-mi to accommodate longer operational cycles.
30 F to 32 F, remaining in range	Apply pre-wetted salt	100		If the desired plowing/treatment frequency cannot be maintained, the spread rate can be increased to 200 lb/lane-mi to accommodate longer operational cycles.
20 F to 30 F, remaining in range	Apply pre-wetted salt	150-200		If the desired plowing/treatment frequency cannot be maintained, the spread rate can be increased to 400 lb/lane-mi to accommodate longer operational cycles.
10 F to 20 F, remaining in range	Apply pre-wetted salt	200		If the desired plowing/treatment frequency cannot be maintained, the spread rate can be increased to 500 lb/lane-mi to accommodate longer operational cycles.
Below 10 F, steady or falling	Plow as needed			As pavement becomes slick apply salt/abrasive mix to enhance traction. Salt will have limited melting power in this temperature range.

APPENDIX 2

CHLORIDE ROAD APPLICATION RATES

Type 2 Winter Event: 6 – 12 in. of snow in 24 hours OR ½ to ¾ in. of ice

Pavement Temperature Range and Trend	Maintenance Action	Pre-wetted Salt Application Rate (lb/lane-mile)	Calibrated Spreader Setting	Comments
Above 32 F, steady or rising	None, see comments			1) Monitor pavement temperature closely for drops toward 32 F and below 2) Treat slick patches if needed with pre-wetted salt at 100 lb/lane-mi; plow if needed.
Above 32 F, below 32 F is imminent	Apply pre-wetted salt	100		If the desired plowing/treatment frequency cannot be maintained, the spread rate can be increased to 200 lb/lane-mi to accommodate longer operational cycles.
30 F to 32 F, remaining in range	Apply pre-wetted salt	100		If the desired plowing/treatment frequency cannot be maintained, the spread rate can be increased to 200 lb/lane-mi to accommodate longer operational cycles.
20 F to 30 F, remaining in range	Apply pre-wetted salt	150-200		If the desired plowing/treatment frequency cannot be maintained, the spread rate can be increased to 400 lb/lane-mi to accommodate longer operational cycles.
10 F to 20 F, remaining in range	Apply pre-wetted salt	200		If the desired plowing/treatment frequency cannot be maintained, the spread rate can be increased to 500 lb/lane-mi to accommodate longer operational cycles.
Below 10 F, steady or falling	Plow as needed			As pavement becomes slick apply salt/abrasive mix to enhance traction. Salt will have limited melting power in this temperature range.

APPENDIX 2

CHLORIDE ROAD APPLICATION RATES

Type 3 Winter Event: 1 – 6 in. of snow/frozen precipitation in 24 hours OR a trace to 1/2 in. of ice

Pavement Temperature Range and Trend	Maintenance Action	Pre-wetted Salt Application Rate (lb/lane-mile)	Calibrated Spreader Setting	Comments
Above 32 F, steady or rising	None, see comments			1) Monitor pavement temperature closely for drops toward 32 F and below 2) Treat slick patches if needed with pre-wetted salt at 100 lb/lane-mi; plow if needed.
Above 32 F, below 32 F is imminent	Apply pre-wetted salt	100		1) Applications will need to be more frequent at lower temperatures and higher snowfall rates. 2) After heavier snow periods and during light snowfall, reduce salt rate to 100 lb./lane-mile; continue to plow and apply salt as needed
20 F to 32 F, remaining in range	Apply pre-wetted salt	100		1) Applications will need to be more frequent at lower temperatures and higher snowfall rates. 2) After heavier snow periods and during light snowfall, reduce salt rate to 100 lb./lane-mile; continue to plow and apply salt as needed.
10 F to 20 F, remaining in range	Apply pre-wetted salt	200		Reduce salt rate to 200 lb./lane-mile after heavier snow periods and during light snowfall; continue to plow and apply salt as needed.
Below 10 F, steady or falling	Plow as needed			As pavement becomes slick, apply salt/abrasive mix to enhance traction. Salt will have limited melting power at these temperatures.

APPENDIX 2

CHLORIDE ROAD APPLICATION RATES

Type 4 Winter Event: Dusting to 1 in. of snow, sleet, or other frozen precipitation

Pavement Temperature Range and Trend	Maintenance Action	Pre-wetted Salt Application Rate (lb/lane-mile)	Calibrated Spreader Setting	Comments
Above 32 F, steady or rising	None, see comments			1) Monitor pavement temperature closely for drops toward 32 F and below 2) Treat slick patches if needed with pre-wetted salt at 100 lb/lane-mi; plow if needed.
Above 32 F, below 32 F is imminent	Apply pre-wetted salt	100		Applications will need to be more frequent at lower temperatures and higher snowfall rates.
15 F to 32 F, remaining in range	Apply pre-wetted salt	100		Applications will need to be more frequent at lower temperatures and higher snowfall rates.
0 F to 15 F, remaining in range	Apply pre-wetted salt	200		Abrasives may be added to the salt to enhance traction at colder temperatures
Below 0 F, steady or falling	Plow as needed			If pavement becomes slick apply salt/abrasive mix to enhance traction. Salt will have limited melting power in this temperature range.

APPENDIX 2

CHLORIDE ROAD APPLICATION RATES

Type 5 Winter Event: Frost, Flurries, Freezing Fog, Blowing Snow and Refreeze

Pavement Temperature Range and Trend	Maintenance Action	Pre-wetted Salt Application Rate (lb/lane-mile)	Calibrated Spreader Setting	Comments
Above 32 F, steady or rising	None, see comments			Monitor pavement temperature closely for drops toward 32 F and below
Above 32 F, below 32 F is imminent, and equal to or below dew point	Apply pre-wetted salt	25-65		Monitor pavement closely; if pavement becomes wet or if thin ice forms, reapply salt at higher indicated rate
28 F to 32 F, remaining in range, and equal to or below dew point	Apply pre-wetted salt	25-65		Monitor pavement closely; if pavement becomes wet or if thin ice forms, reapply salt at higher indicated rate
20 F to 28 F, remaining in range, and equal to or below dew point	Apply pre-wetted salt	65-130		1) Monitor pavement closely; if thin ice forms, reapply salt at higher indicated rate. 2) Applications will need to be more frequent at higher levels of condensation; if traffic volumes are not enough to disperse condensation, it may be necessary to increase frequency.
10 F to 20 F, remaining in range	Apply pre-wetted salt	130-200		1) Monitor pavement closely; if thin ice forms, reapply salt at higher indicated rate. 2) Applications will need to be more frequent at higher levels of condensation; if traffic volumes are not enough to disperse condensation, it may be necessary to increase frequency.
Below 10 F, steady or falling	Apply abrasives			Monitor pavement closely, salt will have limited melting power in this temperature range.

APPENDIX 2

CHLORIDE SIDEWALK APPLICATION RATES

Type 1 Winter Event: More than 12 inches of snow in 24 hours OR more than ¾ inch of ice

Pavement Temperature Range and Trend	Maintenance Action	Pre-wetted Salt Application Rate (lb/1000 sq feet)	Calibrated Spreader Setting	Comments
Above 32 F, steady or rising	None, see comments			1) Monitor pavement temperature closely for drops toward 32 F and below. 2) Treat slick patches if needed with pre-wetted salt at 100 lb/lane-mi; plow if needed.
Above 32 F, below 32 F is imminent	Apply pre-wetted salt	1.6		If the desired plowing/treatment frequency cannot be maintained, the spread rate can be increased to 200 lb/lane-mi to accommodate longer operational cycles.
30 F to 32 F, remaining in range	Apply pre-wetted salt	1.6		If the desired plowing/treatment frequency cannot be maintained, the spread rate can be increased to 200 lb/lane-mi to accommodate longer operational cycles.
20 F to 30 F, remaining in range	Apply pre-wetted salt	2.4-3.2		If the desired plowing/treatment frequency cannot be maintained, the spread rate can be increased to 400 lb/lane-mi to accommodate longer operational cycles.
10 F to 20 F, remaining in range	Apply pre-wetted salt	3.2		If the desired plowing/treatment frequency cannot be maintained, the spread rate can be increased to 500 lb/lane-mi to accommodate longer operational cycles.
Below 10 F, steady or falling	Plow as needed			As pavement becomes slick apply salt/abrasive mix to enhance traction. Salt will have limited melting power in this temperature range.

APPENDIX 2

CHLORIDE SIDEWALK APPLICATION RATES

Type 2 Winter Event: 6 – 12 in. of snow in 24 hours OR ½ to ¾ in. of ice

Pavement Temperature Range and Trend	Maintenance Action	Pre-wetted Salt Application Rate (lb/1000 sq feet)	Calibrated Spreader Setting	Comments
Above 32 F, steady or rising	None, see comments			1) Monitor pavement temperature closely for drops toward 32 F and below. 2) Treat slick patches if needed with pre-wetted salt at 100 lb/lane-mi; plow if needed.
Above 32 F, below 32 F is imminent	Apply pre-wetted salt	1.6		If the desired plowing/treatment frequency cannot be maintained, the spread rate can be increased to 200 lb/lane-mi to accommodate longer operational cycles.
30 F to 32 F, remaining in range	Apply pre-wetted salt	1.6		If the desired plowing/treatment frequency cannot be maintained, the spread rate can be increased to 200 lb/lane-mi to accommodate longer operational cycles.
20 F to 30 F, remaining in range	Apply pre-wetted salt	2.4-3.2		If the desired plowing/treatment frequency cannot be maintained, the spread rate can be increased to 400 lb/lane-mi to accommodate longer operational cycles.
10 F to 20 F, remaining in range	Apply pre-wetted salt	3.2		If the desired plowing/treatment frequency cannot be maintained, the spread rate can be increased to 500 lb/lane-mi to accommodate longer operational cycles.
Below 10 F, steady or falling	Plow as needed			As pavement becomes slick apply salt/abrasive mix to enhance traction. Salt will have limited melting power in this temperature range.

APPENDIX 2

CHLORIDE SIDEWALK APPLICATION RATES

Type 3 Winter Event: 1 – 6 in. of snow/frozen precipitation in 24 hours OR a trace to 1/2 in. of ice

Pavement Temperature Range and Trend	Maintenance Action	Pre-wetted Salt Application Rate (lb/1000 sq feet)	Calibrated Spreader Setting	Comments
Above 32 F, steady or rising	None, see comments			1) Monitor pavement temperature closely for drops toward 32 F and below. 2) Treat slick patches if needed with pre-wetted salt at 100 lb/lane-mi; plow if needed.
Above 32 F, below 32 F is imminent	Apply pre-wetted salt	1.6		1) Applications will need to be more frequent at lower temperatures and higher snowfall rates. 2) After heavier snow periods and during light snowfall, reduce salt rate to 100 lb./lane-mile; continue to plow and apply salt as needed.
20 F to 32 F, remaining in range	Apply pre-wetted salt	1.6		1) Applications will need to be more frequent at lower temperatures and higher snowfall rates. 2) After heavier snow periods and during light snowfall, reduce salt rate to 100 lb./lane-mile; continue to plow and apply salt as needed.
10 F to 20 F, remaining in range	Apply pre-wetted salt	3.2		Reduce salt rate to 200 lb./lane-mile after heavier snow periods and during light snowfall; continue to plow and apply salt as needed.
Below 10 F, steady or falling	Plow as needed			As pavement becomes slick, apply salt/abrasive mix to enhance traction. Salt will have limited melting power at these temperatures.

APPENDIX 2

CHLORIDE SIDEWALK APPLICATION RATES

Type 4 Winter Event: Dusting to 1 in. of snow, sleet, or other frozen precipitation

Pavement Temperature Range and Trend	Maintenance Action	Pre-wetted Salt Application Rate (lb/1000 sq feet)	Calibrated Spreader Setting	Comments
Above 32 F, steady or rising	None, see comments			1) Monitor pavement temperature closely for drops toward 32 F and below. 2) Treat slick patches if needed with pre-wetted salt at 100 lb/lane-mi; plow if needed.
Above 32 F, below 32 F is imminent	Apply pre-wetted salt	1.6		Applications will need to be more frequent at lower temperatures and higher snowfall rates.
15 F to 32 F, remaining in range	Apply pre-wetted salt	1.6		Applications will need to be more frequent at lower temperatures and higher snowfall rates.
0 F to 15 F, remaining in range	Apply pre-wetted salt	3.2		Abrasives may be added to the salt to enhance traction at colder temperatures
Below 0 F, steady or falling	Plow as needed			If pavement becomes slick apply salt/abrasive mix to enhance traction. Salt will have limited melting power in this temperature range.

APPENDIX 2

CHLORIDE SIDEWALK APPLICATION RATES

Type 5 Winter Event: Frost, Flurries, Freezing Fog, Blowing Snow and Refreeze

Pavement Temperature Range and Trend	Maintenance Action	Pre-wetted Salt Application Rate (lb/1000 sq feet)	Calibrated Spreader Setting	Comments
Above 32 F, steady or rising	None, see comments			Monitor pavement temperature closely for drops toward 32 F and below
Above 32 F, below 32 F is imminent, and equal to or below dew point	Apply pre-wetted salt	0.4-1.0		Monitor pavement closely; if pavement becomes wet or if thin ice forms, reapply salt at higher indicated rate
28 F to 32 F, remaining in range, and equal to or below dew point	Apply pre-wetted salt	0.4-1.0		Monitor pavement closely; if pavement becomes wet or if thin ice forms, reapply salt at higher indicated rate
20 F to 28 F, remaining in range, and equal to or below dew point	Apply pre-wetted salt	1.0-2.0		1) Monitor pavement closely; if thin ice forms, reapply salt at higher indicated rate. 2) Applications will need to be more frequent at higher levels of condensation; if traffic volumes are not enough to disperse condensation, it may be necessary to increase frequency.
10 F to 20 F, remaining in range	Apply pre-wetted salt	2.0-3.2		1) Monitor pavement closely; if thin ice forms, reapply salt at higher indicated rate. 2) Applications will need to be more frequent at higher levels of condensation; if traffic volumes are not enough to disperse condensation, it may be necessary to increase frequency.
Below 10 F, steady or falling	Apply abrasives			Monitor pavement closely, salt will have limited melting power in this temperature range.

Callout #	Facility Location	Call out Date/Time	Completion Date/Time	Precipitation Type	Snow Amount (inches)	Sleet Amount (inches)	Freezing Rain Amount (inches)	Rain Amount (inches)
1	CWRP & LWRP	20-Dec-24		Snow	1			
2	CWRP & LWRP	20-Dec-24		Snow	1			
3	CWRP & LWRP	20-Dec-24	20-Dec-24	Snow	2			
4	CWRP & LWRP	20-Dec-24	20-Dec-24	Snow	1			
5	CWRP & LWRP	20-Dec-24	20-Dec-24	Snow	1			
6	CWRP & LWRP	3-Jan-25	3-Jan-25					
7	CWRP & LWRP	3-Jan-25	3-Jan-25	Snow				
8	CWRP & LWRP	3-Jan-25	3-Jan-25					
9	CWRP & LWRP	10-Jan-25	10-Jan-25	Snow	1			
10	CWRP & LWRP	10-Jan-25	10-Jan-25	Snow	1			
11	CWRP & LWRP	10-Jan-25	10-Jan-25	Snow	1			
12	CWRP & LWRP	10-Jan-25	10-Jan-25	Snow	2			
13	CWRP & LWRP	13-Jan-25	13-Jan-25					
14	CWRP & LWRP		13-Jan-25					
15	CWRP & LWRP	13-Jan-25	13-Jan-25	Snow	3			
16	CWRP & LWRP	13-Jan-25	13-Jan-25					
17	CWRP & LWRP	14-Jan-25	14-Jan-25	Snow	3			
18	CWRP & LWRP	14-Jan-25	14-Jan-25	Snow	3			
19	CWRP & LWRP	23-Jan-25	23-Jan-25	Snow	1			
20	CWRP & LWRP	23-Jan-25	23-Jan-25	Snow	1			
21	CWRP & LWRP	6-Feb-25	6-Feb-25	Freezing_Rain			0.15	
22	CWRP & LWRP	12-Feb-25	13-Feb-25	Snow	5			
23	CWRP & LWRP	14-Jan-25						
24	CWRP & LWRP	13-Feb-25	13-Feb-25					
25	CWRP & LWRP	14-Jan-25	14-Jan-25					
26	CWRP & LWRP	13-Feb-25	13-Feb-25					
27	CWRP & LWRP	13-Feb-25	13-Feb-25					
28	CWRP & LWRP	13-Feb-25	13-Feb-25	Snow	3			
29	CWRP & LWRP	13-Feb-25	13-Feb-25					

Callout #	Facility Location	Pavement Conditions	Pavement Temperature (°F)	Are pavement temperatures rising or falling?	Air Temperature (°F)	Wind or Blowing Snow?	Storm Length
1	CWRP & LWRP	Wet	33	Rising	33	Wind	
2	CWRP & LWRP	Wet	33	Rising	33	Wind	
3	CWRP & LWRP	Wet	18		33	Wind	9:32
4	CWRP & LWRP	Wet	20	Rising	35	Wind	7:00
5	CWRP & LWRP	Wet	18	Falling	33	Wind	5:00
6	CWRP & LWRP	Dry	26		26		
7	CWRP & LWRP	Icy	26		26		
8	CWRP & LWRP	Dry	26		26		
9	CWRP & LWRP	Wet	16	Rising	26	Both	10:00
10	CWRP & LWRP	Wet	15	Falling	26	Both	10:00
11	CWRP & LWRP	Wet	16	Rising	28	Both	12:00
12	CWRP & LWRP	Wet	17	Rising	29	Both	16:00
13	CWRP & LWRP	Icy	1	Rising	9	Wind	
14	CWRP & LWRP						
15	CWRP & LWRP	Icy	6	Rising	16	Wind	
16	CWRP & LWRP	Icy	9	Rising	19	Wind	
17	CWRP & LWRP	Wet	10	Falling	17	Blowing Snow	7:35
18	CWRP & LWRP	Icy	12	Falling	17	Blowing Snow	8:00
19	CWRP & LWRP	Wet	20		22		
20	CWRP & LWRP	Wet	20		20		
21	CWRP & LWRP	Icy	28	Rising	28		
22	CWRP & LWRP	Wet,Icy	27	Falling	28	Both	3:00
23	CWRP & LWRP						
24	CWRP & LWRP	Icy,Wet	10	Rising	17	Wind	
25	CWRP & LWRP						
26	CWRP & LWRP	Icy,Wet	13	Rising	22	Both	
27	CWRP & LWRP	Icy	8		15	Wind	
28	CWRP & LWRP	Icy,Wet	13	Falling	23	Wind	
29	CWRP & LWRP	Icy	8	Rising	16	Wind	

Callout #	Facility Location	Materials Used	Brine Solution - Amount Used (gallons)	Brine Solution - Application Rate (gal/ft²)	Calcium Chloride - Amount Used (lbs)	Calcium Chloride - Application Rate (lb/ft²)	Sodium Chloride - Amount Used (lbs)	Sodium Chloride - Application Rate (lb/ft²)
1	CWRP & LWRP	Sodium_Chloride_Rock_Salt					3	2
2	CWRP & LWRP	Sodium_Chloride_Rock_Salt						2
3	CWRP & LWRP	Sodium_Chloride_Rock_Salt					1	0
4	CWRP & LWRP	Sodium_Chloride_Rock_Salt					1	0
5	CWRP & LWRP	Sodium_Chloride_Rock_Salt					1	0
6	CWRP & LWRP	Sodium_Chloride_Rock_Salt					1	
7	CWRP & LWRP	Sodium_Chloride_Rock_Salt					2	
8	CWRP & LWRP	Sodium_Chloride_Rock_Salt					1	
9	CWRP & LWRP	Sodium_Chloride_Rock_Salt						
10	CWRP & LWRP	Sodium_Chloride_Rock_Salt						
11	CWRP & LWRP	Sodium_Chloride_Rock_Salt						
12	CWRP & LWRP	Sodium_Chloride_Rock_Salt						
13	CWRP & LWRP	Sodium_Chloride_Rock_Salt					1	0
14	CWRP & LWRP							
15	CWRP & LWRP	Sodium_Chloride_Rock_Salt					1	0
16	CWRP & LWRP	Sodium_Chloride_Rock_Salt					1	0
17	CWRP & LWRP	Calcium_Chloride			6			
18	CWRP & LWRP	Calcium_Chloride			5			
19	CWRP & LWRP	Sodium_Chloride_Rock_Salt					3	
20	CWRP & LWRP	Sodium_Chloride_Rock_Salt					3	
21	CWRP & LWRP	Brine_Solution,Sodium_Chloride_Rock_Salt	75	0.75			750	0.5
22	CWRP & LWRP	Brine_Solution,Calcium_Chloride	75	0.75	1050	0.75		
23	CWRP & LWRP							
24	CWRP & LWRP	Sodium_Chloride_Rock_Salt					6	0
25	CWRP & LWRP	Potassium_Chloride,Sodium_Chloride_Rock_Salt						
26	CWRP & LWRP	Sodium_Chloride_Rock_Salt					2	0
27	CWRP & LWRP	Sodium_Chloride_Rock_Salt					25	0
28	CWRP & LWRP	Sodium_Chloride_Rock_Salt					3	0
29	CWRP & LWRP	Sodium_Chloride_Rock_Salt					7	0

Callout #	Facility Location	Equipment Used	Equipment Other Description	How many anti-icing application passes were made?
1	CWRP & LWRP	Walk_Behind_Salt_Spreader		1
2	CWRP & LWRP	Walk_Behind_Salt_Spreader		1
3	CWRP & LWRP	Other	Hand salt spreader	
4	CWRP & LWRP	Other	Hand salt spreader	
5	CWRP & LWRP	Other	Hand Salt Spreader	
6	CWRP & LWRP	Other	Manual spreading with 1lb cup, half pound used	1
7	CWRP & LWRP	Other	(2) 1 pound cup	1
8	CWRP & LWRP	Other	Manual spreading with 1lb cup, half pound used	1
9	CWRP & LWRP	Other		
10	CWRP & LWRP			
11	CWRP & LWRP	Other	Hand spreader	
12	CWRP & LWRP	Other	Hand spreader	
13	CWRP & LWRP	Other	Hand spreader	
14	CWRP & LWRP			
15	CWRP & LWRP	Other	Hand spreader	
16	CWRP & LWRP	Other	Hand spreader	
17	CWRP & LWRP	Walk_Behind_Salt_Spreader,Other	Hand	2
18	CWRP & LWRP	Walk_Behind_Salt_Spreader		
19	CWRP & LWRP			
20	CWRP & LWRP	Other	1 lb cup manual spreading by hand	
21	CWRP & LWRP	TRUCK_8067,TRUCK_8068,TRUCK_8701		1
22	CWRP & LWRP	TRUCK_8067,TRUCK_8068,TRUCK_8499,TRUCK_8701		0
23	CWRP & LWRP			
24	CWRP & LWRP	Walk_Behind_Salt_Spreader,Other	Hand spreader	
25	CWRP & LWRP	Other	Handspreader	
26	CWRP & LWRP	Other	Hand spreader	
27	CWRP & LWRP	Walk_Behind_Salt_Spreader		
28	CWRP & LWRP	Other	Hand spreader	
29	CWRP & LWRP	Walk_Behind_Salt_Spreader		

Callout #	Facility Location	Methods used before applying deicer materials?	Other information or comments
1	CWRP & LWRP	Shovelling	
2	CWRP & LWRP	Shovelling	Melvina
3	CWRP & LWRP	Shovelling	Palos Park
4	CWRP & LWRP	Shovelling	Palos Hills
5	CWRP & LWRP	Shovelling	Alsip
6	CWRP & LWRP	None	No snow ice patches. Used half pound for all the patches.
7	CWRP & LWRP	Shovelling	Palos hills hand spread 2 (1) pound cups on ramp.
8	CWRP & LWRP	None	No snow ice patches. Used half pound for all the patches Melvina station.
9	CWRP & LWRP	Shovelling	
10	CWRP & LWRP	Shovelling	Howell
11	CWRP & LWRP	Shovelling	Markham
12	CWRP & LWRP	Shovelling	Glenwood
13	CWRP & LWRP	Shovelling	Alsip
14	CWRP & LWRP		Melvina
15	CWRP & LWRP	Shovelling	Palos Park
16	CWRP & LWRP	Shovelling	Palos Hills
17	CWRP & LWRP	Shovelling,Sweeping	Glenwood
18	CWRP & LWRP	Sweeping,Shovelling	SEPA3
19	CWRP & LWRP	Shovelling	Alsip pump station 8:30 am
20	CWRP & LWRP	Shovelling	Melvina 12:30 pm. Ice on certain spots, not the whole area.
21	CWRP & LWRP	None	
22	CWRP & LWRP	Plowing	
23	CWRP & LWRP		Melvina
24	CWRP & LWRP	Shovelling	Palos Hills
25	CWRP & LWRP	Shovelling	Palos Park
26	CWRP & LWRP	Shovelling	Sepa 4
27	CWRP & LWRP	Shovelling	Melvina
28	CWRP & LWRP	Shovelling	Alsip
29	CWRP & LWRP	Shovelling	Palos Park

Organization Name: Metropolitan Water Reclamation District of Greater Chicago

Chloride TLWQS Annual Report
Appendix 3 – CWRP LWRP Call Out

Callout #	Facility Location	Calcium Chloride - Dry or Wet/Pretreated?	Sodium Chloride - Dry or Wet/Pretreated?	Potassium Chloride - Dry or Wet/Pretreated?	How many lane miles were treated?	How many square feet of parking lots/sidewalks were treated?
1	CWRP & LWRP		Wet/Pretreated			540
2	CWRP & LWRP		Wet/Pretreated		1	
3	CWRP & LWRP		Wet/Pretreated			1980
4	CWRP & LWRP		Wet/Pretreated			750
5	CWRP & LWRP		Wet/Pretreated			2360
6	CWRP & LWRP		Wet/Pretreated		0	15
7	CWRP & LWRP		Wet/Pretreated			
8	CWRP & LWRP		Wet/Pretreated		0	15
9	CWRP & LWRP					
10	CWRP & LWRP		Dry			
11	CWRP & LWRP		Dry			
12	CWRP & LWRP		Dry			
13	CWRP & LWRP		Dry			2360
14	CWRP & LWRP					
15	CWRP & LWRP					1980
16	CWRP & LWRP					750
17	CWRP & LWRP	Dry				
18	CWRP & LWRP	Dry				4000
19	CWRP & LWRP					2360
20	CWRP & LWRP					11916
21	CWRP & LWRP		Wet/Pretreated			6000
22	CWRP & LWRP	Wet/Pretreated			10	5000
23	CWRP & LWRP					
24	CWRP & LWRP					750
25	CWRP & LWRP			Dry		
26	CWRP & LWRP		Wet/Pretreated			
27	CWRP & LWRP		Dry			11916
28	CWRP & LWRP					2360
29	CWRP & LWRP					1980

Organization Name: Metropolitan Water Reclamation District of Greater Chicago

Chloride TLWQS Annual Report
Appendix 4 - Annual Training

Role in Winter Operations	Training Topics Covered
Laborer	Calibration, Pavement Temperatures, Application Rates, Storage, Environmental Impacts
Laborer Foreman	Calibration, Pavement Temperatures, Application Rates, Storage, Environmental Impacts
Truck Driver	Calibration, Pavement Temperatures, Application Rates, Storage, Environmental Impacts
Truck Driver Foreman	Calibration, Pavement Temperatures, Application Rates, Storage, Environmental Impacts
Managers	Calibration, Pavement Temperatures, Application Rates, Storage, Environmental Impacts

Organization Name: Metropolitan Water Reclamation Distirct of Greater Chicago

Chloride TLWQS Annual Report
Appendix 5 - Equipment

Type of Equipment	Equipment/Vehicle Number	Type of Spreader (mechanically controlled, computer controlled, etc.)	Type of Material Used with Equipment (Dry, Pre-Wet, Pretreated, Liquids)	Other Important Equipment Information
Salt Spreader Truck	8701	Mechanical	Pre-wet	
Salt Spreader Truck	8067	Mechanical	Pre-wet	
Salt Spreader Truck	8068	Mechanical	Pre-wet	
Walk behind salt spreader	1	Mechanical	Dry/Pre-wet/Pretreated	
Walk behind salt spreader	2	Mechanical	Dry/Pre-wet/Pretreated	
Walk behind salt spreader	3	Mechanical	Dry/Pre-wet/Pretreated	
Walk behind salt spreader	4	Mechanical	Dry/Pre-wet/Pretreated	
Walk behind salt spreader	5	Mechanical	Dry/Pre-wet/Pretreated	

Organization Name: Metropolitan Water Reclamation District of Greater Chicago

Chloride TLWQS Annual Report
Appendix 6 - Material Storage

Location of Storage Area	Material Stored (Rock Salt, Salt Brine, etc.)	Amount of Material Stored 2022-2023	Amount of Material Stored 2023-2024	Amount of Material Stored 2024-2025	Material stored under permanent cover? (yes/describe other)	Material stored in a fully enclosed structure? (yes/describe other)	Material stored on an impervious pad? (yes/describe other)	Good housekeeping practices followed at storage area? (yes/describe other)
Salt Dome near Truck Storage	Rock Salt	50 tons	50 tons	50 tons	Yes. The storage is an asphalted dome structure with one (1) side open for access.	Yes. The storage is an asphalted dome structure with one (1) side open for access.	Yes, on a sloped asphalted pad.	Yes. Salt spilled during delivery or loading are clean up and return to the stockpile. Ensuring no salt exposed to wet weather conditions and does not come into contact with stormwater.

Organization Name: Metropolitan Water Reclamation District of Greater Chicago

Chloride TLWQS Annual Report
Appendix 7 - Capital Purchases

Capital Purchase Description	Plan/Schedule for Purchase
Salt Storage Dome	Purchased 8/11/2022
Brine Storage Tank and Mixer	Purchased 3/6/2023
Pre-wet Capabilities for Truck 8701	Purchased 7/1/2023

Organization Name: Metropolitan Water Reclamation District of Greater Chicago

Chloride TLWQS Annual Report
Appendix 8 - Chloride Effluent Values

MWRD Final Effluent from Calumet Water Reclamation Plant

Collection Date	Chloride (mg/L)	Collection Date	Chloride (mg/L)
5/6/24	135.17	12/16/24	176.96
5/13/24	146.90	12/17/24	173.08
5/20/24	183.60	12/18/24	210.25
5/27/24	132.02	12/19/24	205.40
6/3/24	135.66	12/20/24	213.89
6/10/24	161.03	12/21/24	419.19
6/17/24	179.64	12/22/24	318.30
6/24/24	113.28	12/23/24	234.05
7/1/24	168.79	12/24/24	218.50
7/8/24	166.83	12/25/24	207.51
7/15/24	82.23	12/26/24	180.78
7/22/24	125.01	12/27/24	182.25
7/29/24	159.12	12/28/24	219.76
8/5/24		12/29/24	201.17
8/12/24	173.41	12/30/24	124.16
8/19/24	99.93	12/31/24	131.24
8/26/24	144.61	1/1/25	120.94
9/2/24	153.22	1/2/25	132.65
9/9/24	179.35	1/3/25	153.50
9/16/24	172.52	1/4/25	162.40
9/23/24	122.03	1/5/25	156.94
9/30/24	106.43	1/6/25	155.57
10/7/24	159.10	1/7/25	177.95
10/14/24	174.23	1/8/25	203.61
10/21/24	157.18	1/9/25	204.25
10/28/24	156.80	1/10/25	205.32
11/4/24	173.75	1/11/25	310.23
11/11/24	152.25	1/12/25	345.93
11/18/24	178.01	1/13/25	384.22
11/25/24	172.52	1/14/25	330.98
12/1/24	166.57	1/15/25	270.51
12/2/24	169.79	1/16/25	237.04
12/3/24	175.29	1/17/25	239.38
12/4/24	196.13	1/18/25	234.01
12/5/24	185.31	1/19/25	229.81
12/6/24	197.24	1/20/25	196.32
12/7/24	191.77	1/21/25	179.82
12/8/24	210.68	1/22/25	188.51
12/9/24	182.64	1/23/25	183.41
12/10/24	192.94	1/24/25	194.36
12/11/24	201.26	1/25/25	195.09
12/12/24	187.01	1/26/25	199.61
12/13/24	175.41	1/27/25	187.51
12/14/24	164.78	1/28/25	181.36
12/15/24	177.48	1/29/25	190.16

Organization Name: Metropolitan Water Reclamation District of Greater Chicago

Chloride TLWQS Annual Report
Appendix 8 - Chloride Effluent Values

MWRD Final Effluent from Calumet Water Reclamation Plant

Collection Date	Chloride (mg/L)	Collection Date	Chloride (mg/L)
1/30/25	189.82	3/16/25	220.73
1/31/25	350.83	3/17/25	228.19
2/1/25	327.32	3/18/25	230.55
2/2/25	282.77	3/19/25	250.21
2/3/25	252.81	3/20/25	225.11
2/4/25	260.46	3/21/25	236.34
2/5/25	241.29	3/22/25	226.80
2/6/25	244.24	3/23/25	225.89
2/7/25	255.88	3/24/25	234.44
2/8/25	241.44	3/25/25	241.58
2/9/25	237.18	3/26/25	235.06
2/10/25	225.32	3/27/25	231.55
2/11/25	226.30	3/28/25	216.79
2/12/25	220.56	3/29/25	196.41
2/13/25	458.85	3/30/25	201.75
2/14/25	657.30	3/31/25	179.56
2/15/25	505.83	4/1/25	196.35
2/16/25	668.15	4/2/25	178.31
2/17/25	507.58	4/3/25	151.78
2/18/25	363.46	4/4/25	197.09
2/19/25	296.24	4/5/25	187.12
2/20/25	255.40	4/6/25	186.70
2/21/25	264.08	4/7/25	176.64
2/22/25	247.19	4/8/25	167.27
2/23/25	237.75	4/9/25	163.43
2/24/25	216.10	4/10/25	159.75
2/25/25	273.32	4/11/25	165.11
2/26/25	317.40	4/12/25	164.60
2/27/25	332.40	4/13/25	155.29
2/28/25	316.58	4/14/25	149.67
3/1/25	301.90	4/15/25	148.71
3/2/25	276.58	4/16/25	164.05
3/3/25	257.19	4/17/25	194.03
3/4/25	292.38	4/18/25	222.32
3/5/25	337.24	4/19/25	212.95
3/6/25	297.23	4/20/25	209.73
3/7/25	280.45	4/21/25	188.65
3/8/25	297.58	4/22/25	187.89
3/9/25	275.32	4/23/25	188.13
3/10/25	251.67	4/24/25	185.08
3/11/25	249.15	4/25/25	209.32
3/12/25	254.34	4/26/25	206.10
3/13/25	250.75	4/27/25	206.73
3/14/25	244.79	4/28/25	195.36
3/15/25	239.99	4/29/25	194.14

Organization Name: Metropolitan Water Reclamation District of Greater Chicago

Chloride TLWQS Annual Report
Appendix 8 - Chloride Effluent Values

MWRD Final Effluent from Calumet Water Reclamation Plant

Collection Date	Chloride (mg/L)	Collection Date	Chloride (mg/L)
4/30/25	214.87		

Annual Report for Year 3 (2024-2025) of the Time Limited Water Quality Standard for Chloride – Lockport Powerhouse

July 1, 2025

Prepared by The Metropolitan Water Reclamation District of Greater Chicago

Chicago Area Waterways
CHLORIDE WORKGROUP

LOWER DES PLAINES WATERSHED GROUP

The Metropolitan Water Reclamation District of Greater Chicago is a member of the Chicago Area Waterways Chloride Workgroup and Lower Des Plaines Watershed Group

1.0 Introduction

This Annual Report has been prepared by the Metropolitan Water Reclamation District of Greater Chicago to report on progress in meeting the requirements for the Time Limited Water Quality Standard for Chloride. The Metropolitan Water Reclamation District of Greater Chicago is a discharger covered under the Time Limited Water Quality Standard for Chloride for the Chicago Area Waterways System and Lower Des Plaines River watersheds. This Annual Report has been prepared to meet the requirements laid out in the Time Limited Water Quality Standard (TLWQS) for Chloride.

Chloride does not degrade over time and continues to accumulate in the environment. Proactive measures to reduce the amount of chloride discharged can help reduce the impacts from chloride on receiving waterways and the environment. Chloride impacts aquatic life, vegetation, and infrastructure. As the chloride concentrations increase and our waters become saltier, aquatic and plant biodiversity decreases and native species are overtaken by salt tolerant invasive species.

Chlorides are commonly found in road salt, fertilizers, water softeners, dust suppressants, and certain industrial processes. Chloride-based deicers, like rock salt, are used on parking lots, sidewalks, and roads to provide safe surfaces to the public during the winter months. These deicers are one of most common sources of chloride in the Chicago region.

The water quality standard for chloride for the Chicago Area Waterway System (CAWS) was updated as part of the rulemaking process related to changing the designated use of the CAWS. The chloride standard was updated from 1,500 mg/L during the winter and 500 mg/L during the summer to 500 mg/L all year round. The change in the chloride water quality standard took effect in 2018. Because portions of the CAWS were not going to meet this new standard due to the need to maintain public safety on roads, highways, sidewalks and parking lots during the winter months, a joint submittal and supporting individual petitions were submitted between 2015 and 2018 to the Illinois Pollution Control Board for a variance from the chloride standard. The joint petition laid out best management practices that can be achieved by the petitioners to reduce their chloride use while maintaining public safety during winter storms. In addition to the CAWS, portions of the Lower Des Plaines River watershed were included as it receives water from the CAWS.

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2.0 Organization, Facility Information

Agency Name: Metropolitan Water Reclamation District of Greater Chicago		
Facility Name: Lockport Powerhouse		Chloride TLWQS Permit Number: ILG103016
Facility Address:2400 S Powerhouse Road		
City: Lockport	State: Illinois	Zip Code: 60441

The Lockport Powerhouse is a dam and powerhouse used to control the water surface elevation in the Chicago Sanitary and Ship Canal. Most of the snow and ice control is provided by truck drivers under contract with MWRD. The facility has an approximate 2-mile entrance road that is maintained and a small parking lot.

2.1 Level of Service for Winter Maintenance Activities

The goal is to provide safe travel for staff working at the Lockport Powerhouse after a winter storm.

3.0 Best Management Practices

Details regarding the Metropolitan Water Reclamation District of Greater Chicago's implementation of the best management practices (BMPs) identified as part of the TLWQS for Chloride are included below.

Workgroup BMP

BMP	Agency Description of Current Implementation or Status Update to the Plan to Implement the BMP
The permittee must participate in a Chlorides workgroup for the CAWS or LDPR, depending on the watershed within which the facility's discharge is located.	Member of CAWS workgroup.

Salt Storage and Handling BMPs

BMP	Agency Description of Current Implementation or Status Update to the Plan to Implement the BMP
Store all salt on an impermeable pad that must be constructed to ensure that minimal stormwater is coming into contact with salt unless the salt is stored in a container that ensures stormwater does not come into contact with the salt.	No salt pile at this location. Bagged salt is stored in the garage with a concrete floor. Contractor for MWRD uses brine application, currently no brine stored on site.
Cover salt piles at all times except when in active use, unless stored indoors.	No salt pile at this location. Bagged salt is stored in the garage with a concrete floor.
For working areas, provide berms and or sufficient slope to	Bagged salt is stored in the garage with a concrete floor.

allow snow melt and stormwater to drain away from the area. If snow melt and stormwater cannot be drained away from the working area, channeling water to a collection point such as a sump, holding tank or lined basin for collection, discharge at a later time, use for prewetting, and use for make-up water for brine must be considered.	
MS4/CSO Only - Use deicing material storage structures for all communities covered under General Permit ILR40 for MS4 communities.	N/A
Good housekeeping practices must be implemented at the site, including: • cleanup of salt at the end of each day or conclusion of a storm event; • tarping of trucks for transportation of bulk chloride; • maintaining the pad and equipment; • good practices during loading and unloading; • cleanup of loading and spreading equipment after each snow/ice event; • a written inspection program for storage facility, structures and work area; • removing surplus materials from the site when winter activity finished where applicable; • annual inspection and repairs completed when practical; • evaluate the opportunity to reduce or reuse the wash water.	No salt pile at this location. Bagged salt is stored in the garage with a concrete floor. Any salt spilled on the floor is swept up.

Winter Maintenance Operations BMPs

BMP	Agency Description of Current Implementation or Status Update to the Plan to Implement the BMP
Calibrate all salt spreading equipment at least annually before November 30th. Records of the calibration results must be maintained for each piece of spreading equipment.	Calibrated hand spreader at LPH.
Pre-wet road salt before use, either by applying liquids to the salt stockpile, or by applying liquids by way of the spreading equipment as the salt is deposited on the road.	N/A. Contractor uses brine application.
Use equipment to measure the pavement temperature unless such equipment has already been installed on road salt spreading vehicles.	Handheld temp sensor used by drivers from Stickney WRP.
Develop and implement a protocol to vary the salt application rate based on pavement temperature, existing weather conditions, and forecasted weather conditions.	Service is primarily provided by outside contractor under contract with MWRD. Contractor is obligated to follow MWRD BMP's as they are implemented.
Track and record salt quantity used and storm conditions from each call-out.	IT developed a system for tracking.
Develop a written plan for implementation of anti-icing, with milestones. The plan should consider increased use of liquids (e.g., carbohydrate products) beginning with critical locations such as bridges over streams.	Service is primarily provided by drivers from the Stickney WRP and LPH will incorporate changes as they are implemented at the Stickney WRP. Contractor for MWRD uses brine solution**.**
Provide employees involved in winter maintenance operations with annual training before November 30th on best management practices in the use of road salt in operations, including the practice of plowing first and applying salt only after snow has been cleared.	Training is performed annually in the fall.

Be responsible for complying with all applicable BMPs even when deicing practices are contracted out and ensure that contractors are property trained and comply with all applicable BMPs.	Contractors must comply with District policies.
Complete an annual report, as required by paragraph 3(B) of this order, which is standardized in an electronic format and submitted to the IEPA's website and to the watershed group.	MWRD Tech Projects will submit reports annually to IEPA and CAWCW.
Obtain and put into place equipment necessary to implement all salt spreading/deicing measure specified in this BMP, such as any new or retrofitted salt spreading equipment necessary to allow for pre- wetting and proper rates of application.	LPH will implement BMPs and budget for any new equipment, as needed.
MS4/CSO/IDOT/TOLLWAY Only - Install equipment to measure the pavement temperature on the winter maintenance fleet for a sufficient number of vehicles to provide sufficient information to adjust application rates for the most efficient levels. Develop and complete a plan to equip the winter maintenance fleet before the first re-evaluation.	N/A
MS4/CSO/IDOT/TOLLWAY Only - Before the first re-evaluation, develop a method for conducting a post-winter review to identify areas of success and areas in need of improvement. Items to be completed as part of the review must include, but are not limited to, an evaluation of each salt spreader's application rate, variations in application rates, and discussion of the variation compared to the recommended rates. Once	N/A

developed, the review should occur annually in the spring/early summer following each winter season.	

3.1 Analysis of BMPs Implemented

The Lockport Powerhouse utilized a contractor to provide winter maintenance in the 2024-2025 winter season. Lockport Powerhouse will continue to implement the required BMPS and educate contractors about following the BMPs.

3.2 Analysis of Alternative Treatments or New Technology

The Lockport Powerhouse utilized a contractor to provide winter maintenance in the 2024-2025 winter season. Liquids were solely used by the contractor when applicable which should help decrease the chloride usage.

4.0 Deicing/Anti-Icing Agents Used

Materials used by the Metropolitan Water Reclamation District of Greater Chicago for the 2024-2025 winter season are included as Appendix 1.

4.1 Application Rates

The application rates used by the Metropolitan Water Reclamation District of Greater Chicago for the 2024-2025 winter season are included as Appendix 2.

4.1.1 Application Rate Analysis

The Lockport Powerhouse utilized a contractor to apply liquids and utilizes a calibrated hand spreader to apply rock salt.

4.2 Application Practices

The Lockport Powerhouse is a small facility that was serviced primarily by staff from the Stickney WRP. Limited application is performed by on-stie staff using a hand spreader. The Lockport Powerhouse utilized a contractor to provide winter maintenance in the 2024-2025 winter season. Liquids were solely used by the contractor when applicable. See Stickney WRP report for details of Stickney WRP application practices used at Lockport.

4.3 Call Outs

A total of 6.3 inches of snow was reported in Lockport Powerhouse for the 2024-2025 winter. There were 0 freezing rain event(s) and 5 snow event(s) for the 2024-2025 winter. The Metropolitan Water Reclamation District of Greater Chicago - Lockport had 6 call outs completed during the 2024-2025 winter. A log of all call outs completed by the Metropolitan Water Reclamation District of Greater Chicago are included as Appendix 3.

4.4 Use of Liquids

The Lockport Powerhouse is a small facility that was serviced primarily by staff from the Stickney WRP. Limited application is performed by on-stie staff using a hand spreader. See Stickney WRP report for details of Stickney WRP application practices used at Lockport. A contractor was primarily used for winter maintenance for portions of Lockport Powerhouse. The contractor used only liquids for winter maintenance.

5.0 Training

The Metropolitan Water Reclamation District of Greater Chicago - Lockport completed annual training for employees who are part of the winter maintenance operations during the fall of 2024. A list of annual training topics by type of employee is included as Appendix 4.

6.0 Deicing and Snow Removal Equipment and Maintenance

The Metropolitan Water Reclamation District of Greater Chicago – Lockport uses a hand spreader that did not require maintenance this year. See Stickney WRP annual report for details on maintenance of their equipment.

6.1 Description of Equipment Washing and Wash Water Collection

The staff at the Lockport Powerhouse use a hand spreader that does not require washing and collection of water.

7.0 Material Storage

The Metropolitan Water Reclamation District of Greater Chicago - Lockport uses a garage for bagged salt. Information regarding the storage area(s) is included in Appendix 6.

8.0 Capital Purchases

Identified capital purchases from the Metropolitan Water Reclamation District of Greater Chicago – Lockport's PMP to implement the BMPs and reduce chlorides in our operations over the first 5-year term of the Chloride TLWQS are included as Appendix 7.

8.1 Explanation of Capital Purchases Unable to Be Made According to the Reported Plan

Budget constraints due to operational needs limits the ability to purchase capital equipment.

9.0 Environmental Monitoring Data

Chloride monitoring data is collected for the CAWS and Lower Des Plaines River watersheds per the IPCB order. The data is maintained by the workgroups. Chloride data for the CAWS is collected by MWRD for the CAWS watershed and provided to the workgroups as part of the annual reporting as required by the IPCB order. The Lower Des Plaines Watershed Group also maintains a USGS monitoring station in the Des Plaines River at Channahon, IL that collects continuous conductivity data to estimate chloride concentrations.

Chloride monitoring data reports are posted to https://www.cawswatershed.org/reports/ and https://ldpwatersheds.org/about-us/lower-des-plaines-watershed-group/our-work/chloride-tlwqs/.

9.1 Organization Specific Chloride Monitoring Data

The Metropolitan Water Reclamation District of Greater Chicago collects chloride monitoring data as part of its NPDES effluent data.

9.2 Changes to the Facility's NPDES Treatment Technologies for Chloride

No changes were made.

10.0 Program Evaluation

The biggest impact comes from educating and training staff that apply chlorides to understand how chlorides work and the most efficient and environmentally friendly use of chlorides. There was 1 callout for the 2024-2025 season that the contractor failed to complete a callout form and provide data for. Further educating contractors should result in more accurate chloride usage data collection

10.1 Proposed Steps for the Coming Year

Continue to train staff that apply chlorides to understand how chlorides work and the most efficient and environmentally friendly use of chlorides.

11.0 Workgroup Participation

The MWRD is a member of the CAWS Chloride Workgroup. MWRD attends and participates in quarterly membership meetings, sends staff to Winter Deicing Workshops, and also submits annual reports to the workgroup.

Organization Name: Metropolitan Water Reclamation District of Greater Chicago

Chloride TLWQS Annual Report
Appendix 1 - Deicing/Anti-Icing Agents Used

Material or Product	Dry, Pre-Wet, Pretreated, or Liquid	Lane Miles Treated with the Product for 2022-2023	Parking Lot and Sidewalk Area (Sq. Ft.) Treated with the Product for 2022-2023	Lane Miles Treated with the Product for 2023-2024	Parking Lot and Sidewalk Area (Sq. Ft.) Treated with the Product for 2023-2024	Lane Miles Treated with the Product for 2024-2025	Parking Lot and Sidewalk Area (Sq. Ft.) Treated with the Product for 2024-2025	Total Amount used for 2022-2023 (Year 1) in Tons or Gallons	Total Amount used for 2023-2024 (Year 2) in Tons or Gallons	Total Amount used for 2024-2025 (Year 3) in Tons or Gallons	Total Amount used for 2025-2026 (Year 4) in Tons or Gallons	Total Amount used for 2026-2027 (Year 5) in Tons or Gallons	Total Amount Used Over First 5-Year Term
Calcium Chloride	Dry		5760		5040			0.125 Tons	0.175 Tons				0.3 Tons
Sodium Chloride	Dry				1440				0.05 Tons				0.05 Tons
Brine Solution	Liquids					25.2	806,750			4275 Gallons			4275 Gallons
													0
													0
													0
													0
													0
													0
													0
													0

Estimates of Relative Material Amounts Applied and Coverage Achieved

Year	Total Lane Miles Maintained	Total Parking Lot and Sidewalk Area (Sq. Ft.) Maintained	Percent of Total Lane Miles Treated with Dry Materials	Percent of Total Lane Miles Treated with Pre-Wet or Pretreated Materials	Percent of Total Lane Miles Treated with Liquids	Percent of Total Parking Lot and Sidewalk Area Treated with Dry	Percent of Total Parking Lot and Sidewalk Area Treated with Pre-wet or Pretreated Materials	Percent of Total Parking Lot and Sidewalk Area Treated with Liquids
2022-2023		5,760	0%	0%	0%	100%	0%	0%
2023-2024		6,480	0%	0%	0%	100%	0%	0%
2024-2025	25.2	806,750	0%	0%	100%	0%	0%	100%

Truck Drivers
• Truck Drivers clear the snow and ice prior to applying salt.
• Truck Drivers applied salt at a rate of 1,348 lbs/lane-mile.
• Truck Drivers will reapply salt if more snow comes or is otherwise needed.
• In 2024-25 no trucks at SWRP had anti-icing equipment.
Laborers
• Laborers clear the snow and ice prior to applying salt.
• Laborers applied salt at a rate of 25 lbs/1000 sq. ft.
• Laborers applied salt as conditions and complaints (slips and falls warranted).
• Anti-icing of the sidewalks was tested once at SWRP, however equipment failures and weather conditions were never optimal to fully pretreat the sidewalks.

Organization Name: Metropolitan Water Reclamation District of Greater Chicago

Chloride TLWQS Annual Report
Appendix 3 - Callouts

Callout #	Brine Solution - Amount Used (gallons)	Brine Solution - Application Rate (gal/ft²)	Are Pavement Temperatures Rising or Falling?	Call out Date/Time	Completion Date/Time	Equipment Used	Facility Location
1	800		Falling	1/10/2025 7:00	1/10/2025 23:30	Other	Lockport Powerhouse
2	800		Falling	1/14/2025 7:45	1/14/2025 20:30	Other	Lockport Powerhouse
3	775		Falling	1/6/2025 7:00	1/6/2025 15:00	Other	Lockport Powerhouse
4	500		Falling	1/12/2025 9:03	1/12/2025 18:45	Other	Lockport Powerhouse
5	750			2/12/2025	2/13/2025 6:59	Other	Lockport Powerhouse
6	650			2/15/2025 14:35	2/16/2025 15:32	Other	Lockport Powerhouse

Organization Name: Metropolitan Water Reclamation District of Greater Chicago

Chloride TLWQS Annual Report
Appendix 3 - Callouts

Callout #	Application Passes Made	How many lane miles were treated?	How many square feet of parking lots/sidewalks were treated?	Materials Used	Methods used before applying deicer materials?	Pavement Conditions
1	4.5	5.6	207,450	Brine_Solution	Plowing	Icy
2	2-4.5	5.6	207,450	Brine_Solution	None	Icy
3	1-4.5	2.8	207,450	Brine_Solution	None	Icy
4	2	5.6	92,200	Brine_Solution	Plowing	Icy
5		2.8	46,100	Brine_Solution	Plowing	
6		2.8	46,100	Brine_Solution	None	Icy

Organization Name: Metropolitan Water Reclamation District of Greater Chicago

Chloride TLWQS Annual Report
Appendix 3 - Callouts

Callout #	Equipment Other Description	Precipitation Type	Snow Amount (inches)	Storm Length	Wind or Blowing Snow
1	F350 truck with 500 gallon tank sprayer... F350 truck with snow plow...	Snow	2.5	22 Hours	Wind
2	F350 truck with 500 gallon tank sprayer... F350 truck with snow plow...	Snow		7 Hours	
3	F350 truck with 500 gallon tank sprayer...	Snow	0.3	20 hours	Wind
4	F350 truck with 500 gallon tank sprayer... F350 truck with snow plow...	Snow	1.5	8 hours	Wind
5	F350 Truck with 500 gallon sprayer... F350 Truck with snow plow...	Snow	2	24 hours	
6	F350 Truck with 500 gallon sprayer...			7 hours	

Organization Name: Metropolitan Water Reclamation District of Greater Chicago

Chloride TLWQS Annual Report
Appendix 3 - Callouts

Callout #	Comments
1	Anti-icing application passes: LPH area = 5, Lockport roadways = 2, Lockport Controlling Work = 2
2	Anti-icing application passes: LPH area = 5, Lockport roadways = 2, Lockport Controlling Works = 2
3	Anti-icing application passes: LPH area = 5, Lockport roadways = 1, Lockport Controlling Works = 1
4	Anti-icing application passes: LPH area = 5, Lockport roadways = 1, Lockport Controlling Works = 1
5	De-icing areas: - plowed all areas once. - sprayed liquid brine to LPH and Lockport Controlling Works 5 times and roadways 1 time
6	De-icing areas: - sprayed liquid brine to LPH and Lockport Controlling Works 5 times and roadways 1 time

Organization Name: Metropolitan Water Reclamation District of Greater Chicago

Chloride TLWQS Annual Report
Appendix 4 - Annual Training

Role in Winter Operations	Training Topics Covered
Laborer	Calibration, Pavement Temperatures, Application Rates, Storage, Environmental Impacts
Laborer Foreman	Calibration, Pavement Temperatures, Application Rates, Storage, Environmental Impacts
Truck Driver	Calibration, Pavement Temperatures, Application Rates, Storage, Environmental Impacts
Truck Driver Foreman	Calibration, Pavement Temperatures, Application Rates, Storage, Environmental Impacts
Managers	Calibration, Pavement Temperatures, Application Rates, Storage, Environmental Impacts

Organization Name: Metropolitan Water Reclamation District of Greater Chicago

Chloride TLWQS Annual Report
Appendix 5 - Equipment

Type of Equipment	Equipment/Vehicle Number	Type of Spreader (mechanically controlled, computer controlled, etc.)	Type of Material Used with Equipment (Dry, Pre-Wet, Pretreated, Liquids)	Other Important Equipment Information
Hand Spreader	1	Chaplin Hand Spreader	Dry Calcium Chloride	

Organization Name: Metropolitan Water Reclamation District of Greater Chicago

Chloride TLWQS Annual Report
Appendix 6 - Material Storage

Location of Storage Area	Material Stored (Rock Salt, Salt Brine, etc.)	Amount of Material Stored 2022-2023	Amount of Material Stored 2023-2024	Amount of Material Stored 2024-2025	Material stored under permanent cover? (yes/describe other)	Material stored in a fully enclosed structure? (yes/describe other)	Material stored on an impervious pad? (yes/describe other)	Good housekeeping practices followed at storage area? (yes/describe other)
Garage	Rock Salt	50lb Bags		35ea 50lb bags	Yes	Yes	Yes	Yes

Organization Name: Metropolitan Water Reclamation District of Greater Chicago

Chloride TLWQS Annual Report
Appendix 7 - Capital Purchases

Capital Purchase Description	Plan/Schedule for Purchase
Drop spreaders for Kubota tractors	2026 if suitable drop spreaders are found for existing Kubotas and if budget allows
Spray equipment with 100 gallon tank and spray bar for personel carrier to be used for de-icing sidewalks.	2025-26 if budget allows.
2024 Dump truck , Monroe 13' with spray equipment for prewetting salt	2024 delivery (purchase delayed from 2023)

Annual Report for Year 3 (2024-2025) of the Time Limited Water Quality Standard for Chloride

July 1, 2025

Prepared by The Metropolitan Water Reclamation District of Greater Chicago

Chicago Area Waterways
CHLORIDE WORKGROUP

LOWER DES PLAINES
WATERSHED GROUP

The Metropolitan Water Reclamation District of Greater Chicago is a member of the Chicago Area Waterways Chloride Workgroup and Lower Des Plaines Watershed Group

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2.0 Organization, Facility Information

Agency Name: The Metropolitan Water Reclamation District of Greater Chicago		
Facility Name: Lemont WRP		Permit Number: IL0028070
Facility Address: 13 Stephen St.		
City: Lemont	State: IL	Zip Code: 60439

The Metropolitan Water Reclamation District of Greater Chicago is located primarily within the boundaries of Cook County, Illinois, serving an area of 883.5 square miles, which includes the City of Chicago and 128 suburban communities. The District serves an equivalent population of 12.72 million people: 5.16 million real people, a commercial and industrial equivalent of 5.32 million people, and a combined sewer overflow equivalent of 2.24 million people. The District operates seven automated water reclamation plants to treat over 500 billion gallons of wastewater annually and is considered a world leader in wastewater treatment facilities. Wastewater is collected from municipalities and conveyed to the WRP's through a 554-mile network of intercepting sewers, ranging in size from 6 inches to 27 feet in diameter, with the assistance of 23 pumping stations located throughout this network. The water flowing through the Lockport Powerhouse is harnessed by two turbines to provide a safe and environmentally friendly hydroelectric energy source that is sold back to Commonwealth Edison.

The Lemont Water Reclamation Plant (LWRP) is the smallest of the MWRD's seven water treatment facilities. This Plant began operations in 1961 and consists of three primary buildings: the main building, pump house, and digester building. Unlike the other plants whose tanks are located at ground level, the Lemont tanks are located above ground. Lemont WRP provides service of wastewater treatment to nearly 20,000 residents in the Village of Lemont. It cleans an average of 2 million gallons of wastewater per and can treat 4 million gallons per day.

2.1 Level of Service for Winter Maintenance Activities

The Truck Driver Foreman and the Building and Grounds Labor Foreman are responsible for initiating snow removal during the day. The TPO shall be responsible for initiating all snow removal activities to be performed outside of normal working hours by contacting the truck driver foreman.

When snowfall is forecasted to begin on the morning before a regular working day or any conditions when the TPO III wants to mobilize the snow removal crew, the TPO may notify the Truck Driver Foreman and Building and Grounds Foreman as early as possible.

The following Snowfall depth levels have been identified and shall serve as guidelines for snow removal resource allocation:

Level 1: Up to 4" Snowfall
- 2 - Dump trucks equipped with salt spreader
- 2- Pick-Up Trucks equipped with salt spreaders
- 2 - Hoister with heavy equipment if needed
- Labor Crew (5 Laborers and 1 Labor Foremen)

Level 2: 4”-6” Snowfall
2 - Dump trucks equipped with salt spreaders
2- Pick-Up Trucks equipped with salt spreaders
2 - Hoisters with heavy equipment
Labor Crew (6 Laborers and 1 Labor Foremen)

Level 3: 6”+ Snowfall
2 - Dump trucks equipped with salt spreaders
2- Pick-Up Trucks equipped with salt spreaders
2 - Hoisters with heavy equipment
Labor Crew (7 Laborers, 1 Truck Driver, and 1 Labor Foremen)

Level 4: Snow, Freezing Rain, Ice, and Sleet Hazardous Condition
2 - Dump trucks equipped with salt spreaders
2- Pick-Up Trucks equipped with salt spreaders
Labor Crew (5 Laborers, 1 Truck Driver, and 1 Labor Foremen)
1 or 2 – Hoisters as needed

3.0 Best Management Practices

Details regarding the Metropolitan Water Reclamation District of Greater Chicago’s implementation of the best management practices (BMPs) identified as part of the TLWQS for Chloride are included below.

Workgroup BMP

BMP	Agency Description of Current Implementation or Status Update to the Plan to Implement the BMP
The permittee must participate in a Chlorides workgroup for the CAWS or LDPR, depending on the watershed within which the facility’s discharge is located.	We are a member of the Lower Des Plaines Watershed Group and Chicago Area Waterways Chloride Workgroup.

Salt Storage and Handling BMPs

BMP	Agency Description of Current Implementation or Status Update to the Plan to Implement the BMP
Store all salt on an impermeable pad that must be constructed to ensure that minimal stormwater is coming into contact with salt unless the salt is stored in a container that ensures stormwater does not come into contact with the salt.	The salt is stored on an impermeable asphalt pad.

Cover salt piles at all times except when in active use, unless stored indoors.	Salt storage area is permanently covered
For working areas, provide berms and or sufficient slope to allow snow melt and stormwater to drain away from the area. If snow melt and stormwater cannot be drained away from the working area, channeling water to a collection point such as a sump, holding tank or lined basin for collection, discharge at a later time, use for prewetting, and use for make-up water for brine must be considered.	The pad is sloped away from the salt pile to prevent runoff.
MS4/CSO Only - Use deicing material storage structures for all communities covered under General Permit ILR40 for MS4 communities.	Not Applicable
Good housekeeping practices must be implemented at the site, including: • cleanup of salt at the end of each day or conclusion of a storm event; • tarping of trucks for transportation of bulk chloride; • maintaining the pad and equipment; • good practices during loading and unloading; • cleanup of loading and spreading equipment after each snow/ice event;	At every conclusion of a storm event, labor crews clean and palleted bags of salt, wrapped and store them with the snow removal equipment. Whereas truck drivers swept and returned spilled salt to the stockpile during operation. Not Applicable: Bulk salt is being delivered to site by the vendor. Salt spreader and snow blower equipment are maintained regularly by cleaning and inspecting them after use and doing repairs as necessary. We ensure safety protocols are being followed and implemented. We keep the truck's container and unloading areas clean and free of foreign objects as such could damage spreaders and could occasionally get into salt. After each snow event, all equipment (e.g., snow blowers and walk behind salt spreaders) used are cleaned and kept in good shape.

• a written inspection program for storage facility, structures and work area;	A written inspection program will be made and implemented in the future.
• removing surplus materials from the site when winter activity finished where applicable;	Any surplus materials used in the snow removal are removed from the site and stored in an enclosed area for future use.
• annual inspection and repairs completed when practical;	An annual inspection of the snow blower equipment is carried out and repairs are done if necessary.
• evaluate the opportunity to reduce or reuse the wash water.	Plans are being looked at to partially collect wash water for reuse to make brine, in the future.

Winter Maintenance Operations BMPs

BMP	Agency Description of Current Implementation or Status Update to the Plan to Implement the BMP
Calibrate all salt spreading equipment at least annually before November 30th. Records of the calibration results must be maintained for each piece of spreading equipment.	Salt spreading equipment is calibrated before the start of the winter season.
Pre-wet road salt before use, either by applying liquids to the salt stockpile, or by applying liquids by way of the spreading equipment as the salt is deposited on the road.	All the trucks used will have sprayers installed to pre-wet the salt they are spreading before the start of the season.
Use equipment to measure the pavement temperature unless such equipment has already been installed on road salt spreading vehicles.	All trades have the capability of measuring pavement temperatures using infrared thermometer gun.
Develop and implement a protocol to vary the salt application rate based on pavement temperature, existing	Refer Appendix 2.

weather conditions, and forecasted weather conditions.	
Track and record salt quantity used and storm conditions from each call-out.	Salt usage and storm conditions are tracked on a district worksheet.
Develop a written plan for implementation of anti-icing, with milestones. The plan should consider increased use of liquids (e.g., carbohydrate products) beginning with critical locations such as bridges over streams.	This will be developed in the future.
Provide employees involved in winter maintenance operations with annual training before November 30th on best management practices in the use of road salt in operations, including the practice of plowing first and applying salt only after snow has been cleared.	Training is performed annually in the Fall.
Be responsible for complying with all applicable BMPs even when deicing practices are contracted out and ensure that contractors are property trained and comply with all applicable BMPs.	If contracted, contractors must comply with District policies.
Complete an annual report, as required by paragraph 3(B) of this order, which is standardized in an electronic format and submitted to the IEPA's website and to the watershed group.	MWRD Tech Projects will submit reports annually to IEPA and CAWCW.
Obtain and put into place equipment necessary to implement all salt spreading/deicing measure specified in this BMP, such as any new or retrofitted salt	LWRP will implement BMPs and budget for any new equipment, as needed.

spreading equipment necessary to allow for pre- wetting and proper rates of application.	
MS4/CSO/IDOT/TOLLWAY Only - Install equipment to measure the pavement temperature on the winter maintenance fleet for a sufficient number of vehicles to provide sufficient information to adjust application rates for the most efficient levels. Develop and complete a plan to equip the winter maintenance fleet before the first re-evaluation.	Not Applicable
MS4/CSO/IDOT/TOLLWAY Only - Before the first re-evaluation, develop a method for conducting a post-winter review to identify areas of success and areas in need of improvement. Items to be completed as part of the review must include, but are not limited to, an evaluation of each salt spreader's application rate, variations in application rates, and discussion of the variation compared to the recommended rates. Once developed, the review should occur annually in the spring/early summer following each winter season.	Not Applicable

3.1 Analysis of BMPs Implemented

We were able to make the changes we set out to achieve in our BMPs. Staff did not report any unexpected difficulties in deicing activities, and they have an easier time working with the road salt application. In addition, having a covered storage for road salt is cost-efficient as well as reduces the environmental impact.

3.2 Analysis of Alternative Treatments or New Technology

Our trucks' salt spreaders are now retrofitted with pre-wetting capabilities that allow us to decrease the amount of dry salt we are using and thereby decrease our total chloride usage.

4.0 Deicing/Anti-Icing Agents Used

Materials used by the Metropolitan Water Reclamation District of Greater Chicago for the 2024-2025 winter season are included as Appendix 1.

4.1 Application Rates

The application rates used by the Metropolitan Water Reclamation District of Greater Chicago for the 2024-2025 winter season are included as Appendix 2.

4.1.1 Application Rate Analysis

Due to the implementation of better BMPs and using brine for pre-wetting, we drastically decreased the amount of salt used.

4.2 Application Practices

The Metropolitan Water Reclamation District of Greater Chicago uses the following practices to apply deicing and anti-icing materials:

- Deicing using pre-wetted salt from salt spreader trucks and dry salt from walk-behind spreaders.

4.3 Call Outs

A total of eighteen (18) inches of snow was reported at the Lemont Water Reclamation Plant for the 2024-2025 winter. There was one (1) freezing rain event and sixteen (16) snow events for the 2024-2025 winter. The Metropolitan Water Reclamation District of Greater Chicago had twenty-nine (29) call outs completed during the 2024-2025 winter. A log of all call outs completed is included as Appendix 3.

4.4 Use of Liquids

Brine was used to prewet the salt that was put down during the 2024-2025 winter season.

5.0 Training

The Metropolitan Water Reclamation District of Greater Chicago - LWRP completed annual training for employees who are part of the winter maintenance operations during the fall of 2024. A list of annual training topics by type of employee is included as Appendix 4.

6.0 Deicing and Snow Removal Equipment and Maintenance

The Metropolitan Water Reclamation District of Greater Chicago uses equipment listed in Appendix 5 during winter maintenance activities.

6.1 Description of Equipment Washing and Wash Water Collection

Plans are being looked at to partially collect wash water for reuse to make brine, in the future.

7.0 Material Storage

The Lemont Water Reclamation Plant maintains 0 storage areas; It gets the salt it uses from the Calumet Water Reclamation Plant. Information regarding the storage area(s) is included in Appendix 6.

8.0 Capital Purchases

Identified capital purchases from the Metropolitan Water Reclamation District of Greater Chicago's PMP to implement the BMPs and reduce chlorides in our operations over the first 5-year term of the Chloride TLWQS are included as Appendix 7.

9.0 Environmental Monitoring Data

Chloride monitoring data is collected for the CAWS and Lower Des Plaines River watersheds per the IPCB order. The data is maintained by the workgroups. Chloride data for the CAWS is collected by MWRD for the CAWS watershed and provided to the workgroups as part of the annual reporting as required by the IPCB order. The Lower Des Plaines Watershed Group also maintains a USGS monitoring station in the Des Plaines River at Channahon, IL that collects continuous conductivity data to estimate chloride concentrations.

Chloride monitoring data reports are posted to https://www.cawswatershed.org/reports/ and https://ldpwatersheds.org/about-us/lower-des-plaines-watershed-group/our-work/chloride-tlwqs/.

9.1 Organization Specific Chloride Monitoring Data

The Metropolitan Water Reclamation District of Greater Chicago collects chloride monitoring data as part of its NPDES effluent data and the data is included as Appendix 8.

9.2 Changes to the Facility's NPDES Treatment Technologies for Chloride

No changes were made.

10.0 Program Evaluation

As we go through the upcoming winter, we will be reviewing our callout information, developing a plan on how to adjust our application practices, implementing it, evaluating the results, and repeating those steps to continue improving our process.

10.1 Proposed Steps for the Coming Year

For the past seasons, we achieved our goals of transitioning to using pre-wet salt instead of dry salt and purchased the necessary tools to measure the pavement temperatures. We are considering applying deicing products more efficiently, and anti-icing is being looked into in the future.

11.0 Workgroup Participation

The MWRD is a member of the CAWS Chloride Workgroup. MWRD attends and participates in quarterly membership meetings, sends staff to Winter Deicing Workshops, and submits annual reports to the workgroup.

Organization Name: Metropolitan Water Reclamation District of Greater Chicago

Chloride TLWQS Annual Report
Appendix 1 - Deicing/Anti-Icing Agents Used

Material or Product	Dry, Pre-Wet, Pretreated, or Liquid	Lane Miles Treated with the Product for 2022-2023	Parking Lot and Sidewalk Area (Sq. Ft.) Treated with the Product for 2022-2023	Lane Miles Treated with the Product for 2023-2024	Parking Lot and Sidewalk Area (Sq. Ft.) Treated with the Product for 2023-2024	Lane Miles Treated with the Product for 2024-2025	Parking Lot and Sidewalk Area (Sq. Ft.) Treated with the Product for 2024-2025	Total Amount used for 2022-2023 (Year 1) in Tons or Gallons	Total Amount used for 2023-2024 (Year 2) in Tons or Gallons	Total Amount used for 2024-2025 (Year 3) in Tons or Gallons	Total Amount used for 2025-2026 (Year 4) in Tons or Gallons	Total Amount used for 2026-2027 (Year 5) in Tons or Gallons	Total Amount Used Over First 5-Year Term
Rock Salt	Dry	1.70					1,922.00	8.00 Tons		0.03 Tons			8.03 Tons
Rock Salt	Pre-Wet			1.70		1.00			0.30 Tons	0.08 Tons			0.38 Tons
Brine	Liquids			1.70		1.00			50.00 Gallons	13.50 Gallons			63.50 Gallons

Estimates of Relative Material Amounts Applied and Coverage Achieved

Year	Total Lane Miles Maintained	Total Parking Lot and Sidewalk Area (Sq. Ft.) Maintained	Percent of Total Lane Miles Treated with Dry Materials	Percent of Total Lane Miles Treated with Pre-Wet or Pretreated Materials	Percent of Total Lane Miles Treated with Liquids	Percent of Total Parking Lot and Sidewalk Area Treated with Dry	Percent of Total Parking Lot and Sidewalk Area Treated with Pre-wet or Pretreated Materials	Percent of Total Parking Lot and Sidewalk Area Treated with Liquids					
2022-2023	1.70		100%	0%	0%	0%	0%	0%					
2023-2024	1.70		0%	100%	100%	0%	0%	0%					
2024-2025	2	1,922.00	0%	50%	50%	100%	0%	0%					

APPENDIX 2

CHLORIDE ROAD APPLICATION RATES

Type 1 Winter Event: More than 12 inches of snow in 24 hours OR more than ¾ inch of ice

Pavement Temperature Range and Trend	Maintenance Action	Pre-wetted Salt Application Rate (lb/lane-mile)	Calibrated Spreader Setting	Comments
Above 32 F, steady or rising	None, see comments			1) Monitor pavement temperature closely for drops toward 32 F and below 2) Treat slick patches if needed with pre-wetted salt at 100 lb/lane-mi; plow if needed.
Above 32 F, below 32 F is imminent	Apply pre-wetted salt	100		If the desired plowing/treatment frequency cannot be maintained, the spread rate can be increased to 200 lb/lane-mi to accommodate longer operational cycles.
30 F to 32 F, remaining in range	Apply pre-wetted salt	100		If the desired plowing/treatment frequency cannot be maintained, the spread rate can be increased to 200 lb/lane-mi to accommodate longer operational cycles.
20 F to 30 F, remaining in range	Apply pre-wetted salt	150-200		If the desired plowing/treatment frequency cannot be maintained, the spread rate can be increased to 400 lb/lane-mi to accommodate longer operational cycles.
10 F to 20 F, remaining in range	Apply pre-wetted salt	200		If the desired plowing/treatment frequency cannot be maintained, the spread rate can be increased to 500 lb/lane-mi to accommodate longer operational cycles.
Below 10 F, steady or falling	Plow as needed			As pavement becomes slick apply salt/abrasive mix to enhance traction. Salt will have limited melting power in this temperature range.

APPENDIX 2

CHLORIDE ROAD APPLICATION RATES

Type 2 Winter Event: 6 – 12 in. of snow in 24 hours OR ½ to ¾ in. of ice

Pavement Temperature Range and Trend	Maintenance Action	Pre-wetted Salt Application Rate (lb/lane-mile)	Calibrated Spreader Setting	Comments
Above 32 F, steady or rising	None, see comments			1) Monitor pavement temperature closely for drops toward 32 F and below 2) Treat slick patches if needed with pre-wetted salt at 100 lb/lane-mi; plow if needed.
Above 32 F, below 32 F is imminent	Apply pre-wetted salt	100		If the desired plowing/treatment frequency cannot be maintained, the spread rate can be increased to 200 lb/lane-mi to accommodate longer operational cycles.
30 F to 32 F, remaining in range	Apply pre-wetted salt	100		If the desired plowing/treatment frequency cannot be maintained, the spread rate can be increased to 200 lb/lane-mi to accommodate longer operational cycles.
20 F to 30 F, remaining in range	Apply pre-wetted salt	150-200		If the desired plowing/treatment frequency cannot be maintained, the spread rate can be increased to 400 lb/lane-mi to accommodate longer operational cycles.
10 F to 20 F, remaining in range	Apply pre-wetted salt	200		If the desired plowing/treatment frequency cannot be maintained, the spread rate can be increased to 500 lb/lane-mi to accommodate longer operational cycles.
Below 10 F, steady or falling	Plow as needed			As pavement becomes slick apply salt/abrasive mix to enhance traction. Salt will have limited melting power in this temperature range.

APPENDIX 2

CHLORIDE ROAD APPLICATION RATES

Type 3 Winter Event: 1 – 6 in. of snow/frozen precipitation in 24 hours OR a trace to 1/2 in. of ice

Pavement Temperature Range and Trend	Maintenance Action	Pre-wetted Salt Application Rate (lb/lane-mile)	Calibrated Spreader Setting	Comments
Above 32 F, steady or rising	None, see comments			1) Monitor pavement temperature closely for drops toward 32 F and below 2) Treat slick patches if needed with pre-wetted salt at 100 lb/lane-mi; plow if needed.
Above 32 F, below 32 F is imminent	Apply pre-wetted salt	100		1) Applications will need to be more frequent at lower temperatures and higher snowfall rates. 2) After heavier snow periods and during light snowfall, reduce salt rate to 100 lb./lane-mile; continue to plow and apply salt as needed
20 F to 32 F, remaining in range	Apply pre-wetted salt	100		1) Applications will need to be more frequent at lower temperatures and higher snowfall rates. 2) After heavier snow periods and during light snowfall, reduce salt rate to 100 lb./lane-mile; continue to plow and apply salt as needed.
10 F to 20 F, remaining in range	Apply pre-wetted salt	200		Reduce salt rate to 200 lb./lane-mile after heavier snow periods and during light snowfall; continue to plow and apply salt as needed.
Below 10 F, steady or falling	Plow as needed			As pavement becomes slick, apply salt/abrasive mix to enhance traction. Salt will have limited melting power at these temperatures.

APPENDIX 2

CHLORIDE ROAD APPLICATION RATES

Type 4 Winter Event: Dusting to 1 in. of snow, sleet, or other frozen precipitation

Pavement Temperature Range and Trend	Maintenance Action	Pre-wetted Salt Application Rate (lb/lane-mile)	Calibrated Spreader Setting	Comments
Above 32 F, steady or rising	None, see comments			1) Monitor pavement temperature closely for drops toward 32 F and below 2) Treat slick patches if needed with pre-wetted salt at 100 lb/lane-mi; plow if needed.
Above 32 F, below 32 F is imminent	Apply pre-wetted salt	100		Applications will need to be more frequent at lower temperatures and higher snowfall rates.
15 F to 32 F, remaining in range	Apply pre-wetted salt	100		Applications will need to be more frequent at lower temperatures and higher snowfall rates.
0 F to 15 F, remaining in range	Apply pre-wetted salt	200		Abrasives may be added to the salt to enhance traction at colder temperatures
Below 0 F, steady or falling	Plow as needed			If pavement becomes slick apply salt/abrasive mix to enhance traction. Salt will have limited melting power in this temperature range.

APPENDIX 2

CHLORIDE ROAD APPLICATION RATES

Type 5 Winter Event: Frost, Flurries, Freezing Fog, Blowing Snow and Refreeze

Pavement Temperature Range and Trend	Maintenance Action	Pre-wetted Salt Application Rate (lb/lane-mile)	Calibrated Spreader Setting	Comments
Above 32 F, steady or rising	None, see comments			Monitor pavement temperature closely for drops toward 32 F and below
Above 32 F, below 32 F is imminent, and equal to or below dew point	Apply pre-wetted salt	25-65		Monitor pavement closely; if pavement becomes wet or if thin ice forms, reapply salt at higher indicated rate
28 F to 32 F, remaining in range, and equal to or below dew point	Apply pre-wetted salt	25-65		Monitor pavement closely; if pavement becomes wet or if thin ice forms, reapply salt at higher indicated rate
20 F to 28 F, remaining in range, and equal to or below dew point	Apply pre-wetted salt	65-130		1) Monitor pavement closely; if thin ice forms, reapply salt at higher indicated rate. 2) Applications will need to be more frequent at higher levels of condensation; if traffic volumes are not enough to disperse condensation, it may be necessary to increase frequency.
10 F to 20 F, remaining in range	Apply pre-wetted salt	130-200		1) Monitor pavement closely; if thin ice forms, reapply salt at higher indicated rate. 2) Applications will need to be more frequent at higher levels of condensation; if traffic volumes are not enough to disperse condensation, it may be necessary to increase frequency.
Below 10 F, steady or falling	Apply abrasives			Monitor pavement closely, salt will have limited melting power in this temperature range.

APPENDIX 2

CHLORIDE SIDEWALK APPLICATION RATES

Type 1 Winter Event: More than 12 inches of snow in 24 hours OR more than ¾ inch of ice

Pavement Temperature Range and Trend	Maintenance Action	Pre-wetted Salt Application Rate (lb/1000 sq feet)	Calibrated Spreader Setting	Comments
Above 32 F, steady or rising	None, see comments			1) Monitor pavement temperature closely for drops toward 32 F and below. 2) Treat slick patches if needed with pre-wetted salt at 100 lb/lane-mi; plow if needed.
Above 32 F, below 32 F is imminent	Apply pre-wetted salt	1.6		If the desired plowing/treatment frequency cannot be maintained, the spread rate can be increased to 200 lb/lane-mi to accommodate longer operational cycles.
30 F to 32 F, remaining in range	Apply pre-wetted salt	1.6		If the desired plowing/treatment frequency cannot be maintained, the spread rate can be increased to 200 lb/lane-mi to accommodate longer operational cycles.
20 F to 30 F, remaining in range	Apply pre-wetted salt	2.4-3.2		If the desired plowing/treatment frequency cannot be maintained, the spread rate can be increased to 400 lb/lane-mi to accommodate longer operational cycles.
10 F to 20 F, remaining in range	Apply pre-wetted salt	3.2		If the desired plowing/treatment frequency cannot be maintained, the spread rate can be increased to 500 lb/lane-mi to accommodate longer operational cycles.
Below 10 F, steady or falling	Plow as needed			As pavement becomes slick apply salt/abrasive mix to enhance traction. Salt will have limited melting power in this temperature range.

APPENDIX 2

CHLORIDE SIDEWALK APPLICATION RATES

Type 2 Winter Event: 6 – 12 in. of snow in 24 hours OR ½ to ¾ in. of ice

Pavement Temperature Range and Trend	Maintenance Action	Pre-wetted Salt Application Rate (lb/1000 sq feet)	Calibrated Spreader Setting	Comments
Above 32 F, steady or rising	None, see comments			1) Monitor pavement temperature closely for drops toward 32 F and below. 2) Treat slick patches if needed with pre-wetted salt at 100 lb/lane-mi; plow if needed.
Above 32 F, below 32 F is imminent	Apply pre-wetted salt	1.6		If the desired plowing/treatment frequency cannot be maintained, the spread rate can be increased to 200 lb/lane-mi to accommodate longer operational cycles.
30 F to 32 F, remaining in range	Apply pre-wetted salt	1.6		If the desired plowing/treatment frequency cannot be maintained, the spread rate can be increased to 200 lb/lane-mi to accommodate longer operational cycles.
20 F to 30 F, remaining in range	Apply pre-wetted salt	2.4-3.2		If the desired plowing/treatment frequency cannot be maintained, the spread rate can be increased to 400 lb/lane-mi to accommodate longer operational cycles.
10 F to 20 F, remaining in range	Apply pre-wetted salt	3.2		If the desired plowing/treatment frequency cannot be maintained, the spread rate can be increased to 500 lb/lane-mi to accommodate longer operational cycles.
Below 10 F, steady or falling	Plow as needed			As pavement becomes slick apply salt/abrasive mix to enhance traction. Salt will have limited melting power in this temperature range.

APPENDIX 2

CHLORIDE SIDEWALK APPLICATION RATES

Type 3 Winter Event: 1 – 6 in. of snow/frozen precipitation in 24 hours OR a trace to 1/2 in. of ice

Pavement Temperature Range and Trend	Maintenance Action	Pre-wetted Salt Application Rate (lb/1000 sq feet)	Calibrated Spreader Setting	Comments
Above 32 F, steady or rising	None, see comments			1) Monitor pavement temperature closely for drops toward 32 F and below. 2) Treat slick patches if needed with pre-wetted salt at 100 lb/lane-mi; plow if needed.
Above 32 F, below 32 F is imminent	Apply pre-wetted salt	1.6		1) Applications will need to be more frequent at lower temperatures and higher snowfall rates. 2) After heavier snow periods and during light snowfall, reduce salt rate to 100 lb./lane-mile; continue to plow and apply salt as needed.
20 F to 32 F, remaining in range	Apply pre-wetted salt	1.6		1) Applications will need to be more frequent at lower temperatures and higher snowfall rates. 2) After heavier snow periods and during light snowfall, reduce salt rate to 100 lb./lane-mile; continue to plow and apply salt as needed.
10 F to 20 F, remaining in range	Apply pre-wetted salt	3.2		Reduce salt rate to 200 lb./lane-mile after heavier snow periods and during light snowfall; continue to plow and apply salt as needed.
Below 10 F, steady or falling	Plow as needed			As pavement becomes slick, apply salt/abrasive mix to enhance traction. Salt will have limited melting power at these temperatures.

APPENDIX 2

CHLORIDE SIDEWALK APPLICATION RATES

Type 4 Winter Event: Dusting to 1 in. of snow, sleet, or other frozen precipitation

Pavement Temperature Range and Trend	Maintenance Action	Pre-wetted Salt Application Rate (lb/1000 sq feet)	Calibrated Spreader Setting	Comments
Above 32 F, steady or rising	None, see comments			1) Monitor pavement temperature closely for drops toward 32 F and below. 2) Treat slick patches if needed with pre-wetted salt at 100 lb/lane-mi; plow if needed.
Above 32 F, below 32 F is imminent	Apply pre-wetted salt	1.6		Applications will need to be more frequent at lower temperatures and higher snowfall rates.
15 F to 32 F, remaining in range	Apply pre-wetted salt	1.6		Applications will need to be more frequent at lower temperatures and higher snowfall rates.
0 F to 15 F, remaining in range	Apply pre-wetted salt	3.2		Abrasives may be added to the salt to enhance traction at colder temperatures
Below 0 F, steady or falling	Plow as needed			If pavement becomes slick apply salt/abrasive mix to enhance traction. Salt will have limited melting power in this temperature range.

APPENDIX 2

CHLORIDE SIDEWALK APPLICATION RATES

Type 5 Winter Event: Frost, Flurries, Freezing Fog, Blowing Snow and Refreeze

Pavement Temperature Range and Trend	Maintenance Action	Pre-wetted Salt Application Rate (lb/1000 sq feet)	Calibrated Spreader Setting	Comments
Above 32 F, steady or rising	None, see comments			Monitor pavement temperature closely for drops toward 32 F and below
Above 32 F, below 32 F is imminent, and equal to or below dew point	Apply pre-wetted salt	0.4-1.0		Monitor pavement closely; if pavement becomes wet or if thin ice forms, reapply salt at higher indicated rate
28 F to 32 F, remaining in range, and equal to or below dew point	Apply pre-wetted salt	0.4-1.0		Monitor pavement closely; if pavement becomes wet or if thin ice forms, reapply salt at higher indicated rate
20 F to 28 F, remaining in range, and equal to or below dew point	Apply pre-wetted salt	1.0-2.0		1) Monitor pavement closely; if thin ice forms, reapply salt at higher indicated rate. 2) Applications will need to be more frequent at higher levels of condensation; if traffic volumes are not enough to disperse condensation, it may be necessary to increase frequency.
10 F to 20 F, remaining in range	Apply pre-wetted salt	2.0-3.2		1) Monitor pavement closely; if thin ice forms, reapply salt at higher indicated rate. 2) Applications will need to be more frequent at higher levels of condensation; if traffic volumes are not enough to disperse condensation, it may be necessary to increase frequency.
Below 10 F, steady or falling	Apply abrasives			Monitor pavement closely, salt will have limited melting power in this temperature range.

Callout #	Facility Location	Call out Date/Time	Completion Date/Time	Precipitation Type	Snow Amount (inches)	Sleet Amount (inches)	Freezing Rain Amount (inches)	Rain Amount (inches)
1	CWRP & LWRP	20-Dec-24		Snow	1			
2	CWRP & LWRP	20-Dec-24		Snow	1			
3	CWRP & LWRP	20-Dec-24	20-Dec-24	Snow	2			
4	CWRP & LWRP	20-Dec-24	20-Dec-24	Snow	1			
5	CWRP & LWRP	20-Dec-24	20-Dec-24	Snow	1			
6	CWRP & LWRP	3-Jan-25	3-Jan-25					
7	CWRP & LWRP	3-Jan-25	3-Jan-25	Snow				
8	CWRP & LWRP	3-Jan-25	3-Jan-25					
9	CWRP & LWRP	10-Jan-25	10-Jan-25	Snow	1			
10	CWRP & LWRP	10-Jan-25	10-Jan-25	Snow	1			
11	CWRP & LWRP	10-Jan-25	10-Jan-25	Snow	1			
12	CWRP & LWRP	10-Jan-25	10-Jan-25	Snow	2			
13	CWRP & LWRP	13-Jan-25	13-Jan-25					
14	CWRP & LWRP		13-Jan-25					
15	CWRP & LWRP	13-Jan-25	13-Jan-25	Snow	3			
16	CWRP & LWRP	13-Jan-25	13-Jan-25					
17	CWRP & LWRP	14-Jan-25	14-Jan-25	Snow	3			
18	CWRP & LWRP	14-Jan-25	14-Jan-25	Snow	3			
19	CWRP & LWRP	23-Jan-25	23-Jan-25	Snow	1			
20	CWRP & LWRP	23-Jan-25	23-Jan-25	Snow	1			
21	CWRP & LWRP	6-Feb-25	6-Feb-25	Freezing_Rain			0.15	
22	CWRP & LWRP	12-Feb-25	13-Feb-25	Snow	5			
23	CWRP & LWRP	14-Jan-25						
24	CWRP & LWRP	13-Feb-25	13-Feb-25					
25	CWRP & LWRP	14-Jan-25	14-Jan-25					
26	CWRP & LWRP	13-Feb-25	13-Feb-25					
27	CWRP & LWRP	13-Feb-25	13-Feb-25					
28	CWRP & LWRP	13-Feb-25	13-Feb-25	Snow	3			
29	CWRP & LWRP	13-Feb-25	13-Feb-25					

Callout #	Facility Location	Pavement Conditions	Pavement Temperature (°F)	Are pavement temperatures rising or falling?	Air Temperature (°F)	Wind or Blowing Snow?	Storm Length
1	CWRP & LWRP	Wet	33	Rising	33	Wind	
2	CWRP & LWRP	Wet	33	Rising	33	Wind	
3	CWRP & LWRP	Wet	18		33	Wind	9:32
4	CWRP & LWRP	Wet	20	Rising	35	Wind	7:00
5	CWRP & LWRP	Wet	18	Falling	33	Wind	5:00
6	CWRP & LWRP	Dry	26		26		
7	CWRP & LWRP	Icy	26		26		
8	CWRP & LWRP	Dry	26		26		
9	CWRP & LWRP	Wet	16	Rising	26	Both	10:00
10	CWRP & LWRP	Wet	15	Falling	26	Both	10:00
11	CWRP & LWRP	Wet	16	Rising	28	Both	12:00
12	CWRP & LWRP	Wet	17	Rising	29	Both	16:00
13	CWRP & LWRP	Icy	1	Rising	9	Wind	
14	CWRP & LWRP						
15	CWRP & LWRP	Icy	6	Rising	16	Wind	
16	CWRP & LWRP	Icy	9	Rising	19	Wind	
17	CWRP & LWRP	Wet	10	Falling	17	Blowing Snow	7:35
18	CWRP & LWRP	Icy	12	Falling	17	Blowing Snow	8:00
19	CWRP & LWRP	Wet	20		22		
20	CWRP & LWRP	Wet	20		20		
21	CWRP & LWRP	Icy	28	Rising	28		
22	CWRP & LWRP	Wet,Icy	27	Falling	28	Both	3:00
23	CWRP & LWRP						
24	CWRP & LWRP	Icy,Wet	10	Rising	17	Wind	
25	CWRP & LWRP						
26	CWRP & LWRP	Icy,Wet	13	Rising	22	Both	
27	CWRP & LWRP	Icy	8		15	Wind	
28	CWRP & LWRP	Icy,Wet	13	Falling	23	Wind	
29	CWRP & LWRP	Icy	8	Rising	16	Wind	

Callout #	Facility Location	Materials Used	Brine Solution - Amount Used (gallons)	Brine Solution - Application Rate (gal/ft²)	Calcium Chloride - Amount Used (lbs)	Calcium Chloride - Application Rate (lb/ft²)	Sodium Chloride - Amount Used (lbs)	Sodium Chloride - Application Rate (lb/ft²)
1	CWRP & LWRP	Sodium_Chloride_Rock_Salt					3	2
2	CWRP & LWRP	Sodium_Chloride_Rock_Salt						2
3	CWRP & LWRP	Sodium_Chloride_Rock_Salt					1	0
4	CWRP & LWRP	Sodium_Chloride_Rock_Salt					1	0
5	CWRP & LWRP	Sodium_Chloride_Rock_Salt					1	0
6	CWRP & LWRP	Sodium_Chloride_Rock_Salt					1	
7	CWRP & LWRP	Sodium_Chloride_Rock_Salt					2	
8	CWRP & LWRP	Sodium_Chloride_Rock_Salt					1	
9	CWRP & LWRP	Sodium_Chloride_Rock_Salt						
10	CWRP & LWRP	Sodium_Chloride_Rock_Salt						
11	CWRP & LWRP	Sodium_Chloride_Rock_Salt						
12	CWRP & LWRP	Sodium_Chloride_Rock_Salt						
13	CWRP & LWRP	Sodium_Chloride_Rock_Salt					1	0
14	CWRP & LWRP							
15	CWRP & LWRP	Sodium_Chloride_Rock_Salt					1	0
16	CWRP & LWRP	Sodium_Chloride_Rock_Salt					1	0
17	CWRP & LWRP	Calcium_Chloride			6			
18	CWRP & LWRP	Calcium_Chloride			5			
19	CWRP & LWRP	Sodium_Chloride_Rock_Salt					3	
20	CWRP & LWRP	Sodium_Chloride_Rock_Salt					3	
21	CWRP & LWRP	Brine_Solution,Sodium_Chloride_Rock_Salt	75	0.75			750	0.5
22	CWRP & LWRP	Brine_Solution,Calcium_Chloride	75	0.75	1050	0.75		
23	CWRP & LWRP							
24	CWRP & LWRP	Sodium_Chloride_Rock_Salt					6	0
25	CWRP & LWRP	Potassium_Chloride,Sodium_Chloride_Rock_Salt						
26	CWRP & LWRP	Sodium_Chloride_Rock_Salt					2	0
27	CWRP & LWRP	Sodium_Chloride_Rock_Salt					25	0
28	CWRP & LWRP	Sodium_Chloride_Rock_Salt					3	0
29	CWRP & LWRP	Sodium_Chloride_Rock_Salt					7	0

Callout #	Facility Location	Equipment Used	Equipment Other Description	How many anti-icing application passes were made?
1	CWRP & LWRP	Walk_Behind_Salt_Spreader		1
2	CWRP & LWRP	Walk_Behind_Salt_Spreader		1
3	CWRP & LWRP	Other	Hand salt spreader	
4	CWRP & LWRP	Other	Hand salt spreader	
5	CWRP & LWRP	Other	Hand Salt Spreader	
6	CWRP & LWRP	Other	Manual spreading with 1lb cup, half pound used	1
7	CWRP & LWRP	Other	(2) 1 pound cup	1
8	CWRP & LWRP	Other	Manual spreading with 1lb cup, half pound used	1
9	CWRP & LWRP	Other		
10	CWRP & LWRP			
11	CWRP & LWRP	Other	Hand spreader	
12	CWRP & LWRP	Other	Hand spreader	
13	CWRP & LWRP	Other	Hand spreader	
14	CWRP & LWRP			
15	CWRP & LWRP	Other	Hand spreader	
16	CWRP & LWRP	Other	Hand spreader	
17	CWRP & LWRP	Walk_Behind_Salt_Spreader,Other	Hand	2
18	CWRP & LWRP	Walk_Behind_Salt_Spreader		
19	CWRP & LWRP			
20	CWRP & LWRP	Other	1 lb cup manual spreading by hand	
21	CWRP & LWRP	TRUCK_8067,TRUCK_8068,TRUCK_8701		1
22	CWRP & LWRP	TRUCK_8067,TRUCK_8068,TRUCK_8499,TRUCK_8701		0
23	CWRP & LWRP			
24	CWRP & LWRP	Walk_Behind_Salt_Spreader,Other	Hand spreader	
25	CWRP & LWRP	Other	Handspreader	
26	CWRP & LWRP	Other	Hand spreader	
27	CWRP & LWRP	Walk_Behind_Salt_Spreader		
28	CWRP & LWRP	Other	Hand spreader	
29	CWRP & LWRP	Walk_Behind_Salt_Spreader		

Callout #	Facility Location	Methods used before applying deicer materials?	Other information or comments
1	CWRP & LWRP	Shovelling	
2	CWRP & LWRP	Shovelling	Melvina
3	CWRP & LWRP	Shovelling	Palos Park
4	CWRP & LWRP	Shovelling	Palos Hills
5	CWRP & LWRP	Shovelling	Alsip
6	CWRP & LWRP	None	No snow ice patches. Used half pound for all the patches.
7	CWRP & LWRP	Shovelling	Palos hills hand spread 2 (1) pound cups on ramp.
8	CWRP & LWRP	None	No snow ice patches. Used half pound for all the patches Melvina station.
9	CWRP & LWRP	Shovelling	
10	CWRP & LWRP	Shovelling	Howell
11	CWRP & LWRP	Shovelling	Markham
12	CWRP & LWRP	Shovelling	Glenwood
13	CWRP & LWRP	Shovelling	Alsip
14	CWRP & LWRP		Melvina
15	CWRP & LWRP	Shovelling	Palos Park
16	CWRP & LWRP	Shovelling	Palos Hills
17	CWRP & LWRP	Shovelling,Sweeping	Glenwood
18	CWRP & LWRP	Sweeping,Shovelling	SEPA3
19	CWRP & LWRP	Shovelling	Alsip pump station 8:30 am
20	CWRP & LWRP	Shovelling	Melvina 12:30 pm. Ice on certain spots, not the whole area.
21	CWRP & LWRP	None	
22	CWRP & LWRP	Plowing	
23	CWRP & LWRP		Melvina
24	CWRP & LWRP	Shovelling	Palos Hills
25	CWRP & LWRP	Shovelling	Palos Park
26	CWRP & LWRP	Shovelling	Sepa 4
27	CWRP & LWRP	Shovelling	Melvina
28	CWRP & LWRP	Shovelling	Alsip
29	CWRP & LWRP	Shovelling	Palos Park

Organization Name: Metropolitan Water Reclamation District of Greater Chicago

Chloride TLWQS Annual Report
Appendix 3 – CWRP LWRP Call Out

Callout #	Facility Location	Calcium Chloride - Dry or Wet/Pretreated?	Sodium Chloride - Dry or Wet/Pretreated?	Potassium Chloride - Dry or Wet/Pretreated?	How many lane miles were treated?	How many square feet of parking lots/sidewalks were treated?
1	CWRP & LWRP		Wet/Pretreated			540
2	CWRP & LWRP		Wet/Pretreated		1	
3	CWRP & LWRP		Wet/Pretreated			1980
4	CWRP & LWRP		Wet/Pretreated			750
5	CWRP & LWRP		Wet/Pretreated			2360
6	CWRP & LWRP		Wet/Pretreated		0	15
7	CWRP & LWRP		Wet/Pretreated			
8	CWRP & LWRP		Wet/Pretreated		0	15
9	CWRP & LWRP					
10	CWRP & LWRP		Dry			
11	CWRP & LWRP		Dry			
12	CWRP & LWRP		Dry			
13	CWRP & LWRP		Dry			2360
14	CWRP & LWRP					
15	CWRP & LWRP					1980
16	CWRP & LWRP					750
17	CWRP & LWRP	Dry				
18	CWRP & LWRP	Dry				4000
19	CWRP & LWRP					2360
20	CWRP & LWRP					11916
21	CWRP & LWRP		Wet/Pretreated			6000
22	CWRP & LWRP	Wet/Pretreated			10	5000
23	CWRP & LWRP					
24	CWRP & LWRP					750
25	CWRP & LWRP			Dry		
26	CWRP & LWRP		Wet/Pretreated			
27	CWRP & LWRP		Dry			11916
28	CWRP & LWRP					2360
29	CWRP & LWRP					1980

Organization Name: Metropolitan Water Reclamation District of Greater Chicago

Chloride TLWQS Annual Report
Appendix 4 - Annual Training

Role in Winter Operations	Training Topics Covered
Laborer	Calibration, Pavement Temperatures, Application Rates, Storage, Environmental Impacts
Laborer Foreman	Calibration, Pavement Temperatures, Application Rates, Storage, Environmental Impacts
Truck Driver	Calibration, Pavement Temperatures, Application Rates, Storage, Environmental Impacts
Truck Driver Foreman	Calibration, Pavement Temperatures, Application Rates, Storage, Environmental Impacts
Managers	Calibration, Pavement Temperatures, Application Rates, Storage, Environmental Impacts

Organization Name: Metropolitan Water Reclamation Distirct of Greater Chicago

Chloride TLWQS Annual Report
Appendix 5 - Equipment

Type of Equipment	Equipment/Vehicle Number	Type of Spreader (mechanically controlled, computer controlled, etc.)	Type of Material Used with Equipment (Dry, Pre-Wet, Pretreated, Liquids)	Other Important Equipment Information
Salt Spreader Truck	8701	Mechanical	Pre-wet	
Salt Spreader Truck	8067	Mechanical	Pre-wet	
Salt Spreader Truck	8068	Mechanical	Pre-wet	
Walk behind salt spreader	1	Mechanical	Dry/Pre-wet/Pretreated	
Walk behind salt spreader	2	Mechanical	Dry/Pre-wet/Pretreated	
Walk behind salt spreader	3	Mechanical	Dry/Pre-wet/Pretreated	
Walk behind salt spreader	4	Mechanical	Dry/Pre-wet/Pretreated	
Walk behind salt spreader	5	Mechanical	Dry/Pre-wet/Pretreated	

Organization Name: Metropolitan Water Reclamation District of Greater Chicago

Chloride TLWQS Annual Report
Appendix 6 - Material Storage

Location of Storage Area	Material Stored (Rock Salt, Salt Brine, etc.)	Amount of Material Stored 2022-2023	Amount of Material Stored 2023-2024	Amount of Material Stored 2024-2025	Material stored under permanent cover? (yes/describe other)	Material stored in a fully enclosed structure? (yes/describe other)	Material stored on an impervious pad? (yes/describe other)	Good housekeeping practices followed at storage area? (yes/describe other)
Salt Dome near Truck Storage	Rock Salt	50 tons	50 tons	50 tons	Yes. The storage is an asphalted dome structure with one (1) side open for access.	Yes. The storage is an asphalted dome structure with one (1) side open for access.	Yes, on a sloped asphalted pad.	Yes. Salt spilled during delivery or loading are clean up and return to the stockpile. Ensuring no salt exposed to wet weather conditions and does not come into contact with stormwater.

Organization Name: Metropolitan Water Reclamation District of Greater Chicago

Chloride TLWQS Annual Report
Appendix 7 - Capital Purchases

Capital Purchase Description	Plan/Schedule for Purchase
Salt Storage Dome	Purchased 8/11/2022
Brine Storage Tank and Mixer	Purchased 3/6/2023
Pre-wet Capabilities for Truck 8701	Purchased 7/1/2023

Organization Name: Metropolitan Water Reclamation District of Greater Chicago

Chloride TLWQS Annual Report
Appendix 8 - Chloride Effluent Values

MWRD Final Effluent from Lemont Water Reclamation Plant

Collection Date	Chloride (mg/L)	Collection Date	Chloride (mg/L)
5/6/24	170.81	12/16/24	258.05
5/13/24	217.34	12/17/24	331.45
5/20/24	228.61	12/18/24	330.79
5/27/24	148.76	12/19/24	347.19
6/3/24	166.08	12/20/24	468.12
6/10/24	310.72	12/21/24	496.97
6/17/24	275.51	12/22/24	414.53
6/24/24	263.48	12/23/24	385.75
7/1/24	443.13	12/24/24	403.75
7/8/24	306.85	12/25/24	376.58
7/15/24	190.06	12/26/24	392.66
7/22/24	316.59	12/27/24	409.84
7/29/24	387.02	12/28/24	411.14
8/5/24	353.85	12/29/24	339.87
8/12/24	297.68	12/30/24	282.44
8/19/24	320.62	12/31/24	289.25
8/26/24	425.93	1/1/25	272.99
9/2/24	417.48	1/2/25	283.71
9/9/24	326.42	1/3/25	324.67
9/16/24	291.64	1/4/25	316.10
9/23/24	316.13	1/5/25	306.51
9/30/24	353.70	1/6/25	319.07
10/7/24	321.82	1/7/25	353.27
10/14/24	470.47	1/8/25	338.59
10/21/24	373.54	1/9/25	295.58
10/28/24	302.41	1/10/25	336.63
11/4/24	387.71	1/11/25	518.62
11/11/24	278.05	1/12/25	544.95
11/18/24	219.87	1/13/25	615.40
11/25/24	266.81	1/14/25	556.59
12/1/24	232.57	1/15/25	478.91
12/2/24	249.94	1/16/25	466.55
12/3/24	298.10	1/17/25	454.20
12/4/24	282.97	1/18/25	479.40
12/5/24	272.36	1/19/25	455.86
12/6/24	239.21	1/20/25	408.08
12/7/24	242.67	1/21/25	395.62
12/8/24	252.21	1/22/25	391.07
12/9/24	252.63	1/23/25	406.69
12/10/24	232.54	1/24/25	410.62
12/11/24	236.95	1/25/25	407.72
12/12/24	228.51	1/26/25	377.04
12/13/24	260.86	1/27/25	353.80
12/14/24	220.27	1/28/25	386.03
12/15/24	213.37	1/29/25	441.44

Organization Name: Metropolitan Water Reclamation District of Greater Chicago

Chloride TLWQS Annual Report Appendix
8 - Chloride Effluent Values

MWRD Final Effluent from Lemont Water Reclamation Plant

Collection Date	Chloride (mg/L)	Collection Date	Chloride (mg/L)
1/30/25	480.81	3/16/25	460.44
1/31/25	687.15	3/17/25	458.54
2/1/25	639.54	3/18/25	440.42
2/2/25	557.35	3/19/25	415.74
2/3/25	491.75	3/20/25	459.19
2/4/25	513.95	3/21/25	428.46
2/5/25	483.05	3/22/25	405.68
2/6/25	484.83	3/23/25	399.16
2/7/25	465.66	3/24/25	400.33
2/8/25	428.65	3/25/25	418.58
2/9/25	381.97	3/26/25	391.79
2/10/25	350.94	3/27/25	386.80
2/11/25	395.66	3/28/25	368.42
2/12/25	424.02	3/29/25	369.72
2/13/25	496.54	3/30/25	344.81
2/14/25	472.30	3/31/25	353.97
2/15/25	554.30	4/1/25	367.97
2/16/25	642.29	4/2/25	250.36
2/17/25	567.31	4/3/25	259.88
2/18/25	521.38	4/4/25	333.22
2/19/25	463.20	4/5/25	334.50
2/20/25	420.37	4/6/25	325.94
2/21/25	384.83	4/7/25	316.22
2/22/25	387.03	4/8/25	337.50
2/23/25	386.40	4/9/25	323.01
2/24/25	394.00	4/10/25	288.13
2/25/25	540.29	4/11/25	257.71
2/26/25	619.31	4/12/25	268.32
2/27/25	627.43	4/13/25	275.80
2/28/25	601.72	4/14/25	298.64
3/1/25	549.45	4/15/25	311.05
3/2/25	507.03	4/16/25	317.52
3/3/25	438.49	4/17/25	313.19
3/4/25	532.28	4/18/25	306.59
3/5/25	515.90	4/19/25	280.08
3/6/25	515.58	4/20/25	287.12
3/7/25	516.79	4/21/25	284.53
3/8/25	528.20	4/22/25	362.14
3/9/25	501.21	4/23/25	344.55
3/10/25	488.60	4/24/25	363.96
3/11/25	525.44	4/25/25	362.43
3/12/25	515.84	4/26/25	337.97
3/13/25	469.21	4/27/25	330.22
3/14/25	456.87	4/28/25	309.30
3/15/25	431.18	4/29/25	341.84

Organization Name: Metropolitan Water Reclamation District of Greater Chicago

Chloride TLWQS Annual Report
Appendix 8 - Chloride Effluent Values

MWRD Final Effluent from Lemont Water Reclamation Plant

Collection Date	Chloride (mg/L)	Collection Date	Chloride (mg/L)
4/30/25	347.82		

Annual Report for Year 3 (2024-2025) of the Time Limited Water Quality Standard for Chloride – O'Brien Water Reclamation Plant

July 1, 2025

Prepared by The Metropolitan Water Reclamation District of Greater Chicago

Chicago Area Waterways
CHLORIDE WORKGROUP

LOWER DES PLAINES
WATERSHED GROUP

The Metropolitan Water Reclamation District of Greater Chicago is a member of the Chicago Area Waterways Chloride Workgroup and Lower Des Plaines Watershed Group

1.0 Introduction

This Annual Report has been prepared by the Metropolitan Water Reclamation District of Greater Chicago to report on progress in meeting the requirements for the Time Limited Water Quality Standard for Chloride. The Metropolitan Water Reclamation District of Greater Chicago is a discharger covered under the Time Limited Water Quality Standard for Chloride for the Chicago Area Waterways System and Lower Des Plaines River watersheds. This Annual Report has been prepared to meet the requirements laid out in the Time Limited Water Quality Standard (TLWQS) for Chloride.

Chloride does not degrade over time and continues to accumulate in the environment. Proactive measures to reduce the amount of chloride discharged can help reduce the impacts from chloride on receiving waterways and the environment. Chloride impacts aquatic life, vegetation, and infrastructure. As the chloride concentrations increase and our waters become saltier, aquatic and plant biodiversity decreases and native species are overtaken by salt tolerant invasive species.

Chlorides are commonly found in road salt, fertilizers, water softeners, dust suppressants, and certain industrial processes. Chloride-based deicers, like rock salt, are used on parking lots, sidewalks, and roads to provide safe surfaces to the public during the winter months. These deicers are one of most common sources of chloride in the Chicago region.

The water quality standard for chloride for the Chicago Area Waterway System (CAWS) was updated as part of the rulemaking process related to changing the designated use of the CAWS. The chloride standard was updated from 1,500 mg/L during the winter and 500 mg/L during the summer to 500 mg/L all year round. The change in the chloride water quality standard took effect in 2018. Because portions of the CAWS were not going to meet this new standard due to the need to maintain public safety on roads, highways, sidewalks and parking lots during the winter months, a joint submittal and supporting individual petitions were submitted between 2015 and 2018 to the Illinois Pollution Control Board for a variance from the chloride standard. The joint petition laid out best management practices that can be achieved by the petitioners to reduce their chloride use while maintaining public safety during winter storms. In addition to the CAWS, portions of the Lower Des Plaines River watershed were included as it receives water from the CAWS.

On November 4, 2021, the IPCB issued an Opinion and Order for a Time Limited Water Quality Standard (TLWQS) for Chloride for portions of the CAWS and Lower Des Plains River watersheds. The TLWQS for Chloride watersheds are defined in the Opinion and Order as the Des Plaines River watershed from the Kankakee River to the Will County Line (except for the DuPage River watershed) and the CAWS watershed (except the North Branch Chicago River watershed upstream of the North Shore Channel and those portions of the watershed located in Indiana). This is a watershed-based approach to reduce the chloride concentrations in the CAWS and Lower Des Plaines River. The TLWQS for Chloride requires all dischargers covered under the TLWQS for Chloride to create PMPs and implement specific best management practices based on their operations to reduce their chloride discharges.

2.0 Organization, Facility Information

Agency Name: Metropolitan Water Reclamation District of Greater Chicago		
Facility Name: OWRP		Chloride TLWQS Permit Number: ILG103018
Facility Address: 3500 W Howard		
City: Skokie	State: IL	Zip Code: 60076

The District is located primarily within the boundaries of Cook County, Illinois, serving an area of 883.5 square miles, which includes the City of Chicago and 128 suburban communities. The District serves an equivalent population of 12.72 million people: 5.16 million real people, a commercial and industrial equivalent of 5.32 million people, and a combined sewer overflow equivalent of 2.24 million people. The District operates seven automated water reclamation plants to treat over 500 billion gallons of wastewater annually and is considered a world leader in wastewater treatment facilities. Wastewater is collected from municipalities and conveyed to the WRP's through a 554-mile network of intercepting sewers, ranging in size from 6 inches to 27 feet in diameter, with the assistance of 23 pumping stations located throughout this network. The water flowing through the Lockport Powerhouse is harnessed by two turbines to provide a safe and environmentally friendly hydroelectric energy source that is sold back to Commonwealth Edison.

The O'Brien WRP has a design average flow of 333 million gallons per day and a design maximum flow of 450 million gallons per day.

2.1 Level of Service for Winter Maintenance Activities

The Truck Driver Foreman and the Building and Grounds ET V are responsible for initiating snow removal during the day. The TPO shall be responsible for initiating all snow removal activities to be performed outside of normal working hours by contacting the truck driver foreman and the ET V.

When snowfall is forecasted to begin on the morning before a regular working day or any conditions when the TPO III wants to mobilize the snow removal crew, the TPO may notify the Truck Driver Foreman and Building and Grounds ET V as early as possible.

The following snowfall depth levels have been identified and shall serve as guidelines for snow removal resource allocation:

Level 1: Up to 4" Snowfall
- 1 - Dump truck equipped with salt spreader
- 1 - Hoister with heavy equipment if needed
- Labor Crew (7 Laborers and 1 Labor Foremen)

Level 2: 4"-6" Snowfall
- 1 - Dump truck equipped with salt spreader
- 1- Pick-Up Truck equipped with salt spreader
- 1 - Hoisters with heavy equipment
- Labor Crew (7 Laborers and 1 Labor Foremen)

Level 3: 6"+ Snowfall

1 - Dump truck equipped with salt spreader
1- Pick-Up Truck equipped with salt spreader
1 - Hoisters with heavy equipment
Labor Crew (7 Laborers and 1 Labor Foremen)

Level 4: Snow, Freezing Rain, Ice, and Sleet Hazardous Condition

1 - Dump truck equipped with salt spreader
1- Pick-Up Truck equipped with salt spreader
Labor Crew (7 Laborers and 1 Labor Foremen)

3.0 Best Management Practices

Details regarding the Metropolitan Water Reclamation District of Greater Chicago's implementation of the best management practices (BMPs) identified as part of the TLWQS for Chloride are included below.

Workgroup BMP

BMP	Agency Description of Current Implementation or Status Update to the Plan to Implement the BMP
The permittee must participate in a Chlorides workgroup for the CAWS or LDPR, depending on the watershed within which the facility's discharge is located.	Metropolitan Water Reclamation District of Chicago has been a member of the Lower Des Plaines Watershed Group/Chicago Area Waterways Chloride Workgroup. The MWRD has a representative on the Board of CAWCW.

Salt Storage and Handling BMPs

BMP	Agency Description of Current Implementation or Status Update to the Plan to Implement the BMP
Store all salt on an impermeable pad that must be constructed to ensure that minimal stormwater is coming into contact with salt unless the salt is stored in a container that ensures stormwater does not come into contact with the salt.	All bulk salt stored is stored in a permanent salt structure on a concrete pad. Bagged salt is stored indoors on pallets and in covered bins.
Cover salt piles at all times except when in active use, unless stored indoors.	Yes
For working areas, provide berms and or sufficient slope to allow snow melt and stormwater to drain away from the area. If snow melt and stormwater cannot be drained	OWRP's bulk salt working is minimal. Generally, only two loadings of our large truck is required. We also try to only load salt on dry days. We clean the area afterwards. Sidewalk clearing machinery salt loading is done inside the plant services garage. This is also done with bagged salt, so there is minimal spillage.

away from the working area, channeling water to a collection point such as a sump, holding tank or lined basin for collection, discharge at a later time, use for prewetting, and use for make-up water for brine must be considered.	
MS4/CSO Only - Use deicing material storage structures for all communities covered under General Permit ILR40 for MS4 communities.	
Good housekeeping practices must be implemented at the site, including: • cleanup of salt at the end of each day or conclusion of a storm event; • tarping of trucks for transportation of bulk chloride; • maintaining the pad and equipment; • good practices during loading and unloading; • cleanup of loading and spreading equipment after each snow/ice event; • a written inspection program for storage facility, structures and work area; • removing surplus materials from the site when winter activity finished where applicable; • annual inspection and repairs completed when practical; • evaluate the opportunity to reduce or reuse the wash water.	Excess salt gets swept up after storm events. All loose salt gets swept back into the bulk piles after unloading. All tools and equipment used for snow and ice removal gets placed in a storage location at the end of the winter season. All equipment receives regular maintenance at the end of the season. All repairs are completed as needed.

Winter Maintenance Operations BMPs

BMP	Agency Description of Current Implementation or Status Update to the Plan to Implement the BMP
Calibrate all salt spreading equipment at least annually before November 30th. Records of the calibration results must be maintained for each piece of spreading equipment.	All equipment is calibrated at the start of each winter season. New sensors for some of the spreaders on the trucks have been ordered and installation is being arranged.
Pre-wet road salt before use, either by applying liquids to the salt stockpile, or by applying liquids by way of the spreading equipment as the salt is deposited on the road.	All new plow trucks will have pre wetting as standard. Our main plow truck has pre wetting equipment.
Use equipment to measure the pavement temperature unless such equipment has already been installed on road salt spreading vehicles.	Currently utilizing handheld temp sensors. New plow trucks will have temp sensors equipped.
Develop and implement a protocol to vary the salt application rate based on pavement temperature, existing weather conditions, and forecasted weather conditions.	We currently vary salt application based on the weather forecast and train drivers and laborers.
Track and record salt quantity used and storm conditions from each call-out.	Currently attempting to follow protocols as mentioned in workshops and training.
Develop a written plan for implementation of anti-icing, with milestones. The plan should consider increased use of liquids (e.g., carbohydrate products) beginning with critical locations such as bridges over streams.	Currently implementing but weather conditions were again not favorable for deicing in 2024-25 season. There was one ice storm Feb 14th and it was unexpected.
Provide employees involved in winter maintenance operations with annual training before November 30th on best management practices in the use of road salt in operations, including the practice of plowing first and applying salt only after snow has been cleared.	All employees involved in snow removal are directed to attend a Deicing webinar.

Be responsible for complying with all applicable BMPs even when deicing practices are contracted out and ensure that contractors are property trained and comply with all applicable BMPs.	Supervisors monitor applications and maintain good practices.
Complete an annual report, as required by paragraph 3(B) of this order, which is standardized in an electronic format and submitted to the IEPA's website and to the watershed group.	MWRD Tech Projects will submit reports annually to IEPA and CAWCW.
Obtain and put into place equipment necessary to implement all salt spreading/deicing measure specified in this BMP, such as any new or retrofitted salt spreading equipment necessary to allow for pre- wetting and proper rates of application.	A new truck was purchased and has pre-wetting capabilities.
MS4/CSO/IDOT/TOLLWAY Only - Install equipment to measure the pavement temperature on the winter maintenance fleet for a sufficient number of vehicles to provide sufficient information to adjust application rates for the most efficient levels. Develop and complete a plan to equip the winter maintenance fleet before the first re-evaluation.	N/A
MS4/CSO/IDOT/TOLLWAY Only - Before the first re-evaluation, develop a method for conducting a post-winter review to identify areas of success and areas in need of improvement. Items to be completed as part of the review must include, but are not limited to, an evaluation of each salt spreader's application rate, variations in application rates, and discussion of the variation compared to the recommended rates. Once	N/A

developed, the review should occur annually in the spring/early summer following each winter season.	

3.1 Analysis of BMPs Implemented

MWRD OWRP will continue to calibrate our salt spreaders using methods and calibration charts from saltsmart.org. OWRP is using the equipment on the plow truck for brine stored at OWRP for pre wetting and testing de-icing. MWRD has purchased infrared thermometers to measure pavement temperatures. We monitor the future weather conditions to determine when to begin applying pre wet chloride and anti-icing to the parking lots and roadways. We also utilize a digital form to track the required data for each storm event.

3.2 Analysis of Alternative Treatments or New Technology

Having an additional truck with prewetting capabilities should reduce the amount of salt used on the roadways.

4.0 Deicing/Anti-Icing Agents Used

Materials used by the Metropolitan Water Reclamation District of Greater Chicago for the 2024-2025 winter season are included as Appendix 1.

4.1 Application Rates

The application rates used by the Metropolitan Water Reclamation District of Greater Chicago for the 2024-2025 winter season are included as Appendix 2.

4.1.1 Application Rate Analysis

Brine is used at OWRP as a pre wetting agent on the road trucks and as a de-icing agent on the sidewalks.

4.2 Application Practices

The Metropolitan Water Reclamation District of Greater Chicago uses the following practices to apply deicing and anti-icing materials:

- Deicing can be applied utilizing truck mounted equipment

4.3 Call Outs

A total of 3 inches of snow was reported in OWRP for the 2024-2025 winter. There was 1 freezing rain event and 3 snow events for the 2024-2025 winter. The Metropolitan Water Reclamation District of Greater Chicago had 7 call outs completed during the 2024-2025 winter. A log of all call outs completed by the Metropolitan Water Reclamation District of Greater Chicago are included as Appendix 3.

4.4 Use of Liquids

Conditions (temperature or precipitation) were again not favorable to apply brine to during the 2024-2025 season. Rain was usually forecast prior to a snow event.

5.0 Training

The Metropolitan Water Reclamation District of Greater Chicago - SWRP completed annual training for employees who are part of the winter maintenance operations during the fall of 2024. A list of annual training topics by type of employee is included as Appendix 4.

6.0 Deicing and Snow Removal Equipment and Maintenance

The Metropolitan Water Reclamation District of Greater Chicago uses equipment listed in Appendix 5 during winter maintenance activities.

6.1 Description of Equipment Washing and Wash Water Collection

OWRP does not use a washing station.

7.0 Material Storage

The Metropolitan Water Reclamation District of Greater Chicago maintains one bulk materials storage shed. Information regarding the storage area is included in Appendix 6. All bagged materials are stored indoors.

8.0 Capital Purchases

Identified capital purchases from the Metropolitan Water Reclamation District of Greater Chicago's PMP to implement the BMPs and reduce chlorides in our operations over the first 5-year term of the Chloride TLWQS are included as Appendix 7.

Walk behind spreaders with shields to control overspray were purchased during the winter season.

9.0 Environmental Monitoring Data

Chloride monitoring data is collected for the CAWS and Lower Des Plaines River watersheds per the IPCB order. The data is maintained by the workgroups. Chloride data for the CAWS is collected by MWRD for the CAWS watershed and provided to the workgroups as part of the annual reporting as required by the IPCB order. The Lower Des Plaines Watershed Group also maintains a USGS monitoring station in the Des Plaines River at Channahon, IL that collects continuous conductivity data to estimate chloride concentrations.

Chloride monitoring data reports are posted to https://www.cawswatershed.org/reports/ and https://ldpwatersheds.org/about-us/lower-des-plaines-watershed-group/our-work/chloride-tlwqs/.

9.1 Organization Specific Chloride Monitoring Data

The Metropolitan Water Reclamation District of Greater Chicago collects chloride monitoring data as part of its NPDES effluent data and the data is included as Appendix 8.

9.2 Changes to the Facility's NPDES Treatment Technologies for Chloride

No changes were made.

10.0 Program Evaluation

As we go through the upcoming winter, we will be reviewing our callout information, developing a plan on how to adjust our application practices, implementing it, evaluating the results, and repeating those steps to continue improving our process.

10.1 Proposed Steps for the Coming Year

Continue to maintain, repair, and calibrate current equipment to achieve further chloride reductions.

11.0 Workgroup Participation

The MWRD is a member of the CAWS Chloride Workgroup. MWRD attends and participates in quarterly membership meetings, sends staff to Winter Deicing Workshops, and also submits annual reports to the workgroup.

Organization Name: Metropolitan Water Reclamation District of Greater Chicago

Chloride TLWQS Annual Report
Appendix 1 - Deicing/Anti-Icing Agents Used

Material or Product	Dry, Pre-Wet, Pretreated, or Liquid	Lane Miles Treated with the Product for 2022-2023	Parking Lot and Sidewalk Area (Sq. Ft.) Treated with the Product for 2022-2023	Lane Miles Treated with the Product for 2023-2024	Parking Lot and Sidewalk Area (Sq. Ft.) Treated with the Product for 2023-2024	Lane Miles Treated with the Product for 2024-2025	Parking Lot and Sidewalk Area (Sq. Ft.) Treated with the Product for 2024-2025	Total Amount used for 2022-2023 (Year 1) in Tons or Gallons	Total Amount used for 2023-2024 (Year 2) in Tons or Gallons	Total Amount used for 2024-2025 (Year 3) in Tons or Gallons	Total Amount used for 2025-2026 (Year 4) in Tons or Gallons	Total Amount used for 2026-2027 (Year 5) in Tons or Gallons	Total Amount Used Over First 5-Year Term
Bagged Chloride	Pre-Wet		15000		63869		126,000	1.5 tons	1.5 tons	0.04 tons			3.04 tons
Bulk Rock salt	Dry	3	20000	9.5	300	29		6 tons	3.425 tons	1.6 tons			11.025 tons
Bulk Rock salt	Pre-Wet									1.125 tons			1.125 tons
													0
													0
													0
													0
													0
													0
													0
													0

Estimates of Relative Material Amounts Applied and Coverage Achieved

Year	Total Lane Miles Maintained	Total Parking Lot and Sidewalk Area (Sq. Ft.) Maintained	Percent of Total Lane Miles Treated with Dry Materials	Percent of Total Lane Miles Treated with Pre-Wet or Pretreated Materials	Percent of Total Lane Miles Treated with Liquids	Percent of Total Parking Lot and Sidewalk Area Treated with Dry	Percent of Total Parking Lot and Sidewalk Area Treated with Pre-wet or Pretreated Materials	Percent of Total Parking Lot and Sidewalk Area Treated with Liquids
2022-2023	3	35,000	100%	0%	0%	57%	43%	0%
2023-2024	9.5	64,169	100%	0%	0%	0%	100%	0%
2024-2025	29	126,000	100%	0%	0%	0%	100%	0%

Truck Drivers
• Truck Drivers clear the snow before applying salt. If snow starts while they are applying salt, they will stop until they are able to remove the snow.
• Truck Drivers apply salt at a rate of 300-750 lb./lane-mile. This is dependent of pavement temperature.
• Truck Drivers will reapply salt if more snow comes or is otherwise needed.
Buildings and Ground Laborers
• Laborers clear the snow before applying salt. If snow starts while they are applying salt, they will stop until they are able to remove the snow.
• Laborers apply salt at a rate of 7.5 lb./1000 sq. ft. This is dependent of pavement temperature and prior anti-icing.
• Laborers will reapply salt if more snow comes or is otherwise needed.

Organization Name: Metropolitan Water Reclamation District of Greater Chicago

Chloirde TLWQS Annual Report
Appendix 3 - Callouts

Callout #	Air Temperature (°F)	Calcium Chloride - Amount Used (lbs)	Sodium Chloride - Amount Used (lbs)	Are Pavement Temperatures Rising or Falling?	Call out Date/Time	Completion Date/Time	Sodium Chloride - Dry/Wet	Equipment Used	Facility Location	Application Passes Made
1	30		200		2/12/2025	2/12/2025		11TRUK7821	OWRP	
2	24		1,500		1/7/2025	1/7/2025		11TRUK7821	OWRP	2
3	17		500		2/13/2025	2/13/2025		11TRUK7821	OWRP	
4	30		1,000		2/5/2025	2/6/2025		11TRUK7821	OWRP	
5	30	20	500	fall	1/6/2025	1/6/2025	pre wet	11TRUK7821	OWRP	
6	30	30	750	fall	2/6/2025	2/6/2025	pre wet	11TRUK7821	OWRP	
7	32	30	1000	steady	2/14/2025	2/14/2025	pre wet	11TRUK7821	OWRP	

Organization Name: Metropolitan Water Reclamation District of Greater Chicago

Chloirde TLWQS Annual Report
Appendix 3 - Callouts

Callout #	How many lane miles were treated?	How many square feet of parking lots/sidewalks were treated?	Materials Used	Methods used before applying deicer materials?
1	1		Sodium_Chloride_Rock_Salt	Plowing
2	6		Sodium_Chloride_Rock_Salt	Plowing
3	4		Sodium_Chloride_Rock_Salt	Plowing
4	4		Sodium_Chloride_Rock_Salt	None
5	4	60000	Sodium cloride on streets Calcium on sidewalks	Plowing
6	6	60000	Sodium cloride on streets Calcium on sidewalks	ice storm no plow
7	4	6000	Sodium cloride on streets Calcium on sidewalks	Plowing

Organization Name: Metropolitan Water Reclamation District of Greater Chicago

Chloirde TLWQS Annual Report
Appendix 3 - Callouts

Callout #	Pavement Conditions	Pavement Temperature (°F)	Precipitation Type	Snow Amount (inches)	Storm Length	Wind or Blowing Snow
1	Icy	12	Snow	2		
2	Icy	13	Snow			Blowing Snow
3		12	Snow	1		
4	Icy	20	Freezing_Rain			
5						
6						
7						

Organization Name: Metropolitan Water Reclamation District of Greater Chicago

Chloride TLWQS Annual Report
Appendix 4 - Annual Training

Role in Winter Operations	Training Topics Covered
Laborer	Calibration, Pavement Temperatures, Application Rates, Storage, Environmental Impacts
Laborer Foreman	Calibration, Pavement Temperatures, Application Rates, Storage, Environmental Impacts
Truck Driver	Calibration, Pavement Temperatures, Application Rates, Storage, Environmental Impacts
Truck Driver Foreman	Calibration, Pavement Temperatures, Application Rates, Storage, Environmental Impacts
Managers	Calibration, Pavement Temperatures, Application Rates, Storage, Environmental Impacts

Organization Name: Metropolitan Water Reclamation District of Greater Chicago

Chloride TLWQS Annual Report
Appendix 5 - Equipment

Type of Equipment	Equipment/Vehicle Number	Type of Spreader (mechanically controlled, computer controlled, etc.)	Type of Material Used with Equipment (Dry, Pre-Wet, Pretreated, Liquids)	Other Important Equipment Information
snowplow truck		mechancally controlled	pre wet bulk salt	
pickup plow		mechancally controlled	dry bulk salt	
Ventrec 1	Ven 1	mechancally controlled	dry bulk salt	Drop spreader
Ventrec 2	Ven 2	mechancally controlled	dry bulk salt	Drop spreader
Kubota RTV		mechancally controlled	dry bulk salt	This RTV has a broadcast spreader. It is only used during large events, due to its wide broadcast zone.

Organization Name: Metropolitan Water Reclamation District of Greater Chicago

Chloride TLWQS Annual Report
Appendix 6 - Material Storage

Location of Storage Area	Material Stored (Rock Salt, Salt Brine, etc.)	Amount of Material Stored 2022-2023	Amount of Material Stored 2023-2024	Amount of Material Stored 2024-2025	Material stored under permanent cover? (yes/describe other)	Material stored in a fully enclosed structure? (yes/describe other)	Material stored on an impervious pad? (yes/describe other)	Good housekeeping practices followed at storage area? (yes/describe other)
Bulk Materials Building	Bulk rock salt	20 tons	10 tons	15 tons	Yes permanat building	Three sides, sloped out	Concrete	Swept up after truck loading
Plant services Garage	Bagged chlorides	100 Bags	100 bags	75 bags	yes	yes	Concrete	Sweeping

Organization Name: Metropolitan Water Reclamation District of Greater Chicago

Chloride TLWQS Annual Report
Appendix 7 - Capital Purchases

Capital Purchase Description	Plan/Schedule for Purchase
Truck with Prewetting Capabilities	Purchased
Walk behind spreaders with Shields	Purchased

Organization Name: Metropolitan Water Reclamation District of Greater Chicago

Chloride TLWQS Annual Report
Appendix 8 - Chloride Effluent Values

MWRD Final Effluent from O'Brien Water Reclamation Plant

Collection Date	Chloride (mg/L)	Collection Date	Chloride (mg/L)
5/6/24	148.88	12/16/24	104.35
5/13/24	155.43	12/17/24	103.54
5/20/24	140.65	12/18/24	99.12
5/27/24	94.77	12/19/24	96.44
6/3/24	125.18	12/20/24	267.28
6/10/24	129.07	12/21/24	368.68
6/17/24	117.86	12/22/24	172.41
6/24/24	112.00	12/23/24	120.46
7/1/24	114.26	12/24/24	111.71
7/8/24	71.99	12/25/24	107.23
7/15/24	75.11	12/26/24	99.76
7/22/24	127.65	12/27/24	127.11
7/29/24	104.33	12/28/24	172.50
8/5/24	89.73	12/29/24	125.25
8/12/24	102.66	12/30/24	108.16
8/19/24	93.21	12/31/24	100.11
8/26/24	92.40	1/1/25	112.31
9/2/24	94.48	1/2/25	125.80
9/9/24	96.25	1/3/25	124.88
9/16/24	90.32	1/4/25	121.43
9/23/24	68.66	1/5/25	116.32
9/30/24	99.28	1/6/25	121.95
10/7/24	93.55	1/7/25	244.94
10/14/24	89.40	1/8/25	181.32
10/21/24	91.62	1/9/25	142.04
10/28/24	91.58	1/10/25	136.06
11/4/24	83.20	1/11/25	548.53
11/11/24	87.66	1/12/25	400.57
11/18/24	90.91	1/13/25	302.48
11/25/24	114.37	1/14/25	194.72
12/1/24	101.22	1/15/25	150.70
12/2/24	95.73	1/16/25	134.02
12/3/24	97.94	1/17/25	138.74
12/4/24	103.95	1/18/25	151.93
12/5/24	106.49	1/19/25	130.25
12/6/24	100.30	1/20/25	112.27
12/7/24	100.34	1/21/25	106.22
12/8/24	99.24	1/22/25	99.82
12/9/24	97.08	1/23/25	112.08
12/10/24	98.81	1/24/25	139.66
12/11/24	94.10	1/25/25	118.22
12/12/24	91.65	1/26/25	109.28
12/13/24	90.81	1/27/25	102.54
12/14/24	115.00	1/28/25	104.80
12/15/24	90.00	1/29/25	104.50

Organization Name: Metropolitan Water Reclamation District of Greater Chicago

Chloride TLWQS Annual Report
Appendix 8 - Chloride Effluent Values

MWRD Final Effluent from O'Brien Water Reclamation Plant

Collection Date	Chloride (mg/L)	Collection Date	Chloride (mg/L)
1/30/25	105.24	3/16/25	179.14
1/31/25	452.96	3/17/25	195.83
2/1/25	264.06	3/18/25	192.79
2/2/25	221.99	3/19/25	183.30
2/3/25	186.75	3/20/25	268.04
2/4/25	181.24	3/21/25	284.62
2/5/25	168.74	3/22/25	232.53
2/6/25	207.55	3/23/25	215.06
2/7/25	236.41	3/24/25	228.35
2/8/25	174.19	3/25/25	204.91
2/9/25	157.28	3/26/25	193.20
2/10/25	143.49	3/27/25	181.51
2/11/25	139.89	3/28/25	178.33
2/12/25	135.16	3/29/25	177.46
2/13/25	639.45	3/30/25	170.76
2/14/25	653.69	3/31/25	166.45
2/15/25	396.74	4/1/25	172.29
2/16/25	679.49	4/2/25	129.97
2/17/25	367.54	4/3/25	169.86
2/18/25	218.38	4/4/25	203.45
2/19/25	172.97	4/5/25	170.83
2/20/25	150.15	4/6/25	180.53
2/21/25	142.80	4/7/25	182.96
2/22/25	142.47	4/8/25	179.54
2/23/25	137.20	4/9/25	168.00
2/24/25	154.60	4/10/25	165.85
2/25/25	353.89	4/11/25	166.18
2/26/25	435.11	4/12/25	164.75
2/27/25	446.20	4/13/25	159.27
2/28/25	323.81	4/14/25	152.93
3/1/25	268.58	4/15/25	151.16
3/2/25	222.38	4/16/25	152.83
3/3/25	187.25	4/17/25	151.56
3/4/25	237.35	4/18/25	149.31
3/5/25	252.50	4/19/25	145.44
3/6/25	287.10	4/20/25	138.78
3/7/25	260.59	4/21/25	112.40
3/8/25	274.94	4/22/25	142.81
3/9/25	236.92	4/23/25	141.04
3/10/25	206.68	4/24/25	149.03
3/11/25	200.33	4/25/25	146.66
3/12/25	190.16	4/26/25	137.91
3/13/25	184.29	4/27/25	164.31
3/14/25	172.32	4/28/25	161.64
3/15/25	166.45	4/29/25	151.35

Organization Name: Metropolitan Water Reclamation District of Greater Chicago

Chloride TLWQS Annual Report
Appendix 8 - Chloride Effluent Values

MWRD Final Effluent from O'Brien Water Reclamation Plant

Collection Date	Chloride (mg/L)	Collection Date	Chloride (mg/L)
4/30/25	148.76		

Annual Report for Year 3 (2024-2025) of the Time Limited Water Quality Standard for Chloride – Stickney Water Reclamation Plant

July 1, 2025

Prepared by The Metropolitan Water Reclamation District of Greater Chicago

Chicago Area Waterways
CHLORIDE WORKGROUP

LOWER DES PLAINES
WATERSHED GROUP

The Metropolitan Water Reclamation District of Greater Chicago is a member of the Chicago Area Waterways Chloride Workgroup and Lower Des Plaines Watershed Group

1.0 Introduction

This Annual Report has been prepared by the Metropolitan Water Reclamation District of Greater Chicago to report on progress in meeting the requirements for the Time Limited Water Quality Standard for Chloride. The Metropolitan Water Reclamation District of Greater Chicago is a discharger covered under the Time Limited Water Quality Standard for Chloride for the Chicago Area Waterways System and Lower Des Plaines River watersheds. This Annual Report has been prepared to meet the requirements laid out in the Time Limited Water Quality Standard (TLWQS) for Chloride.

Chloride does not degrade over time and continues to accumulate in the environment. Proactive measures to reduce the amount of chloride discharged can help reduce the impacts from chloride on receiving waterways and the environment. Chloride impacts aquatic life, vegetation, and infrastructure. As the chloride concentrations increase and our waters become saltier, aquatic and plant biodiversity decreases and native species are overtaken by salt tolerant invasive species.

Chlorides are commonly found in road salt, fertilizers, water softeners, dust suppressants, and certain industrial processes. Chloride-based deicers, like rock salt, are used on parking lots, sidewalks, and roads to provide safe surfaces to the public during the winter months. These deicers are one of most common sources of chloride in the Chicago region.

The water quality standard for chloride for the Chicago Area Waterway System (CAWS) was updated as part of the rulemaking process related to changing the designated use of the CAWS. The chloride standard was updated from 1,500 mg/L during the winter and 500 mg/L during the summer to 500 mg/L all year round. The change in the chloride water quality standard took effect in 2018. Because portions of the CAWS were not going to meet this new standard due to the need to maintain public safety on roads, highways, sidewalks and parking lots during the winter months, a joint submittal and supporting individual petitions were submitted between 2015 and 2018 to the Illinois Pollution Control Board for a variance from the chloride standard. The joint petition laid out best management practices that can be achieved by the petitioners to reduce their chloride use while maintaining public safety during winter storms. In addition to the CAWS, portions of the Lower Des Plaines River watershed were included as it receives water from the CAWS.

On November 4, 2021, the IPCB issued an Opinion and Order for a Time Limited Water Quality Standard (TLWQS) for Chloride for portions of the CAWS and Lower Des Plains River watersheds. The TLWQS for Chloride watersheds are defined in the Opinion and Order as the Des Plaines River watershed from the Kankakee River to the Will County Line (except for the DuPage River watershed) and the CAWS watershed (except the North Branch Chicago River watershed upstream of the North Shore Channel and those portions of the watershed located in Indiana). This is a watershed-based approach to reduce the chloride concentrations in the CAWS and Lower Des Plaines River. The TLWQS for Chloride requires all dischargers covered under the TLWQS for Chloride to create PMPs and implement specific best management practices based on their operations to reduce their chloride discharges.

2.0 Organization, Facility Information

Agency Name: Metropolitan Water Reclamation District of Greater Chicago		
Facility Name: Stickney WRP		Permit Number: IL0028053
Facility Address: 6001 W. Pershing Rd.		
City: Cicero	State: IL	Zip Code: 60808

The District is located primarily within the boundaries of Cook County, Illinois, serving an area of 883.5 square miles, which includes the City of Chicago and 128 suburban communities. The District serves an equivalent population of 12.72 million people: 5.16 million real people, a commercial and industrial equivalent of 5.32 million people, and a combined sewer overflow equivalent of 2.24 million people. The District operates seven automated water reclamation plants to treat over 500 billion gallons of wastewater annually and is considered a world leader in wastewater treatment facilities. Wastewater is collected from municipalities and conveyed to the WRP's through a 554-mile network of intercepting sewers, ranging in size from 6 inches to 27 feet in diameter, with the assistance of 23 pumping stations located throughout this network. The water flowing through the Lockport Powerhouse is harnessed by two turbines to provide a safe and environmentally friendly hydroelectric energy source that is sold back to Commonwealth Edison.

The Stickney WRP has a design average flow of 1,200 million gallons per day and a design maximum flow of 1,440 million gallons per day.

2.1 Level of Service for Winter Maintenance Activities

The level of service for the winter maintenance is dependent upon the forecast, amount and intensity of precipitation, weather conditions, and pavement conditions. Staff prioritize service based on plant and operational needs first. The goal is to maintain safe travel for both vehicles and personnel.

3.0 Best Management Practices

Details regarding the Metropolitan Water Reclamation District of Greater Chicago's implementation of the best management practices (BMPs) identified as part of the TLWQS for Chloride are included below.

Workgroup BMP

BMP	Agency Description of Current Implementation or Status Update to the Plan to Implement the BMP
The permittee must participate in a Chlorides workgroup for the CAWS or LDPR, depending on the watershed within which the facility's discharge is located.	Metropolitan Water Reclamation District of Chicago has been a member of the Lower Des Plaines Watershed Group/Chicago Area Waterways Chloride Workgroup. The MWRD has a representative on the Board of CAWCW.

Salt Storage and Handling BMPs

BMP	Agency Description of Current Implementation or Status Update to the Plan to Implement the BMP
Store all salt on an impermeable pad that must be constructed to ensure that minimal stormwater is coming into contact with salt unless the salt is stored in a container that ensures stormwater does not come into contact with the salt.	At SWRP, all bulk salt is stored in a permanent dome structure on a concrete pad to prevent contact with stormwater. SWRP Salt Dome capacity is approximately 412 tons. Bagged salt is stored indoors.
Cover salt piles at all times except when in active use, unless stored indoors.	N/A Stored indoors.
For working areas, provide berms and or sufficient slope to allow snow melt and stormwater to drain away from the area. If snow melt and stormwater cannot be drained away from the working area, channeling water to a collection point such as a sump, holding tank or lined basin for collection, discharge at a later time, use for prewetting, and use for make-up water for brine must be considered.	Working areas have sufficient slope to allow snow melt and stormwater to drain away from the area.
MS4/CSO Only - Use deicing material storage structures for all communities covered under General Permit ILR40 for MS4 communities.	N/A
Good housekeeping practices must be implemented at the site, including: • cleanup of salt at the end of each day or conclusion of a storm event; • tarping of trucks for transportation of bulk chloride; • maintaining the pad and equipment;	Current good housekeeping practices: Cleanup of salt at the end of each storm event. Maintaining equipment Cleanup spreading equipment after each snow/ice event Written inspection program for storage facility (through GASB 34)

• good practices during loading and unloading; • cleanup of loading and spreading equipment after each snow/ice event; • a written inspection program for storage facility, structures and work area; • removing surplus materials from the site when winter activity finished where applicable; • annual inspection and repairs completed when practical; • evaluate the opportunity to reduce or reuse the wash water.	

Winter Maintenance Operations BMPs

BMP	Agency Description of Current Implementation or Status Update to the Plan to Implement the BMP
Calibrate all salt spreading equipment at least annually before November 30th. Records of the calibration results must be maintained for each piece of spreading equipment.	For walk behind spreaders, yearly calibration started 11/28/2022. Trucks salt spreaders were calibrated October of 2024
Pre-wet road salt before use, either by applying liquids to the salt stockpile, or by applying liquids by way of the spreading equipment as the salt is deposited on the road.	Currently three trucks equipped for prewetting. Requesting a fourth in 2026 budget
Use equipment to measure the pavement temperature unless such equipment has already been installed on road salt spreading vehicles.	Handheld temp sensors
Develop and implement a protocol to vary the salt application rate based on pavement temperature, existing weather conditions, and forecasted weather conditions.	Currently attempting to follow protocols as mentioned in workshops and training. There is a need to purchase additional salt spreading equipment (drop spreaders, the Plant has one) that further limit the amount of salt dispersed.

Track and record salt quantity used and storm conditions from each call-out.	Recorded bagged salt usage for each call out 2024-2025 season.
Develop a written plan for implementation of anti-icing, with milestones. The plan should consider increased use of liquids (e.g., carbohydrate products) beginning with critical locations such as bridges over streams.	Currently implementing but equipment breakdowns, and weather conditions were not favorable for deicing during the 2024-2025 season.
Provide employees involved in winter maintenance operations with annual training before November 30th on best management practices in the use of road salt in operations, including the practice of plowing first and applying salt only after snow has been cleared.	Implemented in 2022. Truck drivers attended online webinar training on Oct. 8 and Oct. 15 for Public Roads. Hosted by DuPage River Salt Creek Workgroup. B&G Staff attended Deicing workshop – Parking Lots and Sidewalks on Sept. 26.
Be responsible for complying with all applicable BMPs even when deicing practices are contracted out and ensure that contractors are property trained and comply with all applicable BMPs.	In-House forces used only.
Complete an annual report, as required by paragraph 3(B) of this order, which is standardized in an electronic format and submitted to the IEPA's website and to the watershed group.	MWRD Tech Projects will submit reports annually to IEPA and CAWCW.
Obtain and put into place equipment necessary to implement all salt spreading/deicing measure specified in this BMP, such as any new or retrofitted salt spreading equipment necessary to allow for pre- wetting and proper rates of application.	As budgeting allows, purchase equipment for deicing sidewalks. Took delivery of a new truck with prewetting capability in 2024. Additional truck is being requested on 2026 budget. (Additional truck would bring SWRP's fleet to 4 trucks total)
MS4/CSO/IDOT/TOLLWAY Only - Install equipment to measure the pavement temperature on the winter maintenance fleet for a sufficient number of vehicles	N/A

to provide sufficient information to adjust application rates for the most efficient levels. Develop and complete a plan to equip the winter maintenance fleet before the first re-evaluation.	
MS4/CSO/IDOT/TOLLWAY Only - Before the first re-evaluation, develop a method for conducting a post-winter review to identify areas of success and areas in need of improvement. Items to be completed as part of the review must include, but are not limited to, an evaluation of each salt spreader's application rate, variations in application rates, and discussion of the variation compared to the recommended rates. Once developed, the review should occur annually in the spring/early summer following each winter season.	N/A

3.1 Analysis of BMPs Implemented

We were able to calibrate equipment in 2024. Laborers mentioned having a hard time controlling the salt from flowing out of the spreader attachments.

3.2 Analysis of Alternative Treatments or New Technology

Having an additional truck with prewetting capabilities should reduce the amount of salt used on the roadways. New truck has arrived with prewetting capabilities; however, we had issues with commissioning due to some warranty issues. The truck is ready to go for the next season.

4.0 Deicing/Anti-Icing Agents Used

Materials used by the Metropolitan Water Reclamation District of Greater Chicago for the 2024-2025 winter season are included as Appendix 1.

4.1 Application Rates

The application rates used by the Metropolitan Water Reclamation District of Greater Chicago for the 2024-2025 winter season are included as Appendix 2.

4.1.1 Application Rate Analysis

Insufficient occurrences. Conditions (temperature or precipitation) were not favorable to apply brine to sidewalks during the 2024-2025 season. Rain was usually forecast prior to a snow event.

4.2 Application Practices

The Metropolitan Water Reclamation District of Greater Chicago uses the following practices to apply deicing and anti-icing materials:

- Deicing using brine from walk-behind sprayers.

4.3 Call Outs

A total of 12.05 inches of snow was reported in Stickney WRP for the 2024-2025 winter. There were 2 sleet events and 9 snow events for the 2024-2025 winter. The Metropolitan Water Reclamation District of Greater Chicago had 29 call outs completed during the 2024-2025 winter. A log of all call outs completed by the Metropolitan Water Reclamation District of Greater Chicago are included as Appendix 3.

4.4 Use of Liquids

For sidewalks, one test application was partially done. Equipment failure, and conditions (temperature or precipitation) were not favorable to apply brine to sidewalks during the 2024-2025 season. Sleet was usually forecast prior to a snow event.

5.0 Training

The Metropolitan Water Reclamation District of Greater Chicago - SWRP completed annual training for employees who are part of the winter maintenance operations during the fall of 2024. A list of annual training topics by type of employee is included as Appendix 4.

6.0 Deicing and Snow Removal Equipment and Maintenance

The Metropolitan Water Reclamation District of Greater Chicago uses equipment listed in Appendix 5 during winter maintenance activities.

6.1 Description of Equipment Washing and Wash Water Collection

At SWRP the equipment is washed at the truck garage (truck/car wash area) using minimum water. The wastewater is sent to treatment.

7.0 Material Storage

The Metropolitan Water Reclamation District of Greater Chicago maintains 2 storage areas. Information regarding the storage areas is included in Appendix 6.

8.0 Capital Purchases

Identified capital purchases from the Metropolitan Water Reclamation District of Greater Chicago's PMP to implement the BMPs and reduce chlorides in our operations over the first 5-year term of the Chloride TLWQS are included as Appendix 7.

8.1 Explanation of Capital Purchases Unable to Be Made According to the Reported Plan

Budget constraints due to operational needs limits the ability to purchase capital equipment.

9.0 Environmental Monitoring Data

Chloride monitoring data is collected for the CAWS and Lower Des Plaines River watersheds per the IPCB order. The data is maintained by the workgroups. Chloride data for the CAWS is collected by MWRD for the CAWS watershed and provided to the workgroups as part of the annual reporting as required by the IPCB order. The Lower Des Plaines Watershed Group also maintains a USGS monitoring station in the Des Plaines River at Channahon, IL that collects continuous conductivity data to estimate chloride concentrations.

Chloride monitoring data reports are posted to https://www.cawswatershed.org/reports/ and https://ldpwatersheds.org/about-us/lower-des-plaines-watershed-group/our-work/chloride-tlwqs/.

9.1 Organization Specific Chloride Monitoring Data

The Metropolitan Water Reclamation District of Greater Chicago collects chloride monitoring data as part of its NPDES effluent data and the data is included as Appendix 8.

9.2 Changes to the Facility's NPDES Treatment Technologies for Chloride

No changes were made.

10.0 Program Evaluation

Currently reviewing our salt usage information, evaluating our equipment and adjusting our application practices. Crews seem more cognizant in reducing salt. Brine equipment for parking lots and sidewalks broke so there was minimal usage for this season.

10.1 Proposed Steps for the Coming Year

Continue to maintain, repair, and calibrate current equipment to achieve further chloride reductions. Purchasing a new truck with prewetting capabilities. Plan to work on sidewalk and parking lot brine equipment to hopefully restore functionality for next season.

11.0 Workgroup Participation

The MWRD is a member of the CAWS Chloride Workgroup. MWRD attends and participates in quarterly membership meetings, sends staff to Winter Deicing Workshops, and also submits annual reports to the workgroup.

Organization Name: Metropolitan Water Reclamation District of greater Chicago

Chloride TLWQS Annual Report
Appendix 1 - Deicing/Anti-Icing Agents Used

Material or Product	Dry, Pre-Wet, Pretreated, or Liquid	Lane Miles Treated with the Product for 2022-2023	Parking Lot and Sidewalk Area (Sq. Ft.) Treated with the Product for 2022-2023	Lane Miles Treated with the Product for 2023-2024	Parking Lot and Sidewalk Area (Sq. Ft.) Treated with the Product for 2023-2024	Lane Miles Treated with the Product for 2024-2025	Parking Lot and Sidewalk Area (Sq. Ft.) Treated with the Product for 2024-2025	Total Amount used for 2022-2023 (Year 1) in Tons or Gallons	Total Amount used for 2023-2024 (Year 2) in Tons or Gallons	Total Amount used for 2024-2025 (Year 3) in Tons or Gallons	Total Amount used for 2025-2026 (Year 4) in Tons or Gallons	Total Amount used for 2026-2027 (Year 5) in Tons or Gallons	Total Amount Used Over First 5-Year Term
Bagged Rock Salt, 10% CALCIUM CHLORIDE,50 LB	Dry		250,000		331,679		808,736	2.42 tons	3.75 tons	5.4 tons			11.57 tons
Brine (Sidewalk)	Liquids		40,000		0		11,000	72 gallons	0	12 gallons			84 gallons
Loose Bulk Rock salt	Pre-Wet	36		36		240		24 tons	12 tons	92 tons			128 tons
Loose Bulk Rock salt	Dry					84			6 tons	56 tons			62 tons
													0
													0
													0
													0
													0
													0

Estimates of Relative Material Amounts Applied and Coverage Achieved

Year	Total Lane Miles Maintained	Total Parking Lot and Sidewalk Area (Sq. Ft.) Maintained	Percent of Total Lane Miles Treated with Dry Materials	Percent of Total Lane Miles Treated with Pre-Wet or Pretreated Materials	Percent of Total Lane Miles Treated with Liquids	Percent of Total Parking Lot and Sidewalk Area Treated with Dry	Percent of Total Parking Lot and Sidewalk Area Treated with Pre-wet or Pretreated Materials	Percent of Total Parking Lot and Sidewalk Area Treated with Liquids
2022-2023	36	290,000	0%	100%	0%	86%	0%	14%
2023-2024	0	331679	0%	0%	0%	100%	0%	0%
2024-2025	324	819736	26%	74%	0%	99%	0%	1%

Truck Drivers
• Truck Drivers clear the snow and ice prior to applying salt.
• Truck Drivers applied salt at a rate of 1,348 lbs/lane-mile.
• Truck Drivers will reapply salt if more snow comes or is otherwise needed.
• In 2024-25 no trucks at SWRP had anti-icing equipment.
Laborers
• Laborers clear the snow and ice prior to applying salt.
• Laborers applied salt at a rate of 25 lbs/1000 sq. ft.
• Laborers applied salt as conditions and complaints (slips and falls warranted).
• Anti-icing of the sidewalks was tested once at SWRP, however equipment failures and weather conditions were never optimal to fully pretreat the sidewalks.

Organization Name: Metropolitan Water Reclamation District of Greater Chicago

Chloride TLWQS Annual Report
Appendix 3 - Callouts

Callout #	Air Temperature (°F)	Brine Solution - Amount Used (gallons)	Sodium Chloride - Amount Used	Brine Solution - Application Rate (gal/ft²)	Sodium Chloride - Application Rate (lb/ft²)	Are Pavement Temperatures Rising or Falling?	Call out Date/Time	Completion Date/Time
1	30		400 lbs		0.01	Falling	12/20/2024 18:30	12/20/2024 12:10
2	30		200 lbs		0.01	Falling		
3	15		200 lbs		0	Falling	1/13/2025 9:14	1/13/2025 14:14
4	20		175 lbs		0	Rising		
5			200 lbs		0			
6	30		400 lbs		0.01	Rising	12/20/2024 4:00	12/20/2024 7:00
7	27		1900 lbs		0.03	Falling	2/6/2025 4:00	2/6/2025 7:00
8			300 lbs		0			
9	14		1600 lbs		0.03	Rising	1/14/2025 7:00	1/14/2025 3:30
10			300 lbs		0	Falling		
11	29		1100 lbs		0.02	Rising	1/12/2025 10:30	1/12/2025 3:00
12	18	12	2250 lbs	0	0.04	Falling	2/13/2025 2:00	2/13/2025 12:00
13	20		1750 lbs		0.03	Falling	2/16/2025 7:00	2/16/2025 12:00
14			12 tons				12/20/2024	
15			16 tons				1/12/2025	
16			8 tons				1/14/2025	
17			6 tons				1/22/2025	
18			16 tons				2/5/2025	
19			6 tons				2/6/2025	
20			9 tons				2/12/2025	
21			12 tons				2/13/2025	
22			7 tons				2/16/2025	
23			6 tons				12/20/2024	
24			4 tons				1/12/2025	
25			8 tons				1/14/2025	
26			9 tons				1/22/2025	
27			12 tons				2/5/2025	
28			10 tons				2/6/2025	
29			7 tons				2/13/2025	

Organization Name: Metropolitan Water Reclamation District of Greater Chicago

Chloride TLWQS Annual Report
Appendix 3 - Callouts

Callout #	Sodium Chloride - Dry/Wet	Equipment Used
1	Dry	Walk_Behind_Salt_Spreader
2	Dry	Walk_Behind_Salt_Spreader
3	Dry	Walk_Behind_Salt_Spreader
4	Dry	Walk_Behind_Salt_Spreader
5		Walk_Behind_Salt_Spreader
6	Dry	Other
7	Dry	Chapin_Spreader,SnowEx_Spreader,Walk_Behind_Salt_Spreader,Other
8	Dry	Walk_Behind_Salt_Spreader
9	Dry	Chapin_Spreader,SnowEx_Spreader,Other
10	Dry	Walk_Behind_Salt_Spreader
11	Dry	Chapin_Spreader,SnowEx_Spreader,Other
12	Dry	Chapin_Spreader,SnowEx_12gal_Sprayer,SnowEx_Spreader,Walk_Behind_Salt_Spreader,Other
13	Dry	Chapin_Spreader,SnowEx_Spreader,Walk_Behind_Salt_Spreader,Other
14	Wet	Trucks
15	Wet	Trucks
16	Wet	Trucks
17	Wet	Trucks
18	Wet	Trucks
19	Wet	Trucks
20	Wet	Trucks
21	Wet	Trucks
22	Wet	Trucks
23	Dry	Truck
24	Dry	Truck
25	Dry	Truck
26	Dry	Truck
27	Dry	Truck
28	Dry	Truck
29	Dry	Truck

Organization Name: Metropolitan Water Reclamation District of Greater Chicago

Chloride TLWQS Annual Report
Appendix 3 - Callouts

Callout #	Facility Location	Application Passes Made	How many lane miles were treated?	How many square feet of parking lots/sidewalks were treated?	Materials Used
1	SWRP			74000	Sodium_Chloride_Rock_Salt
2	SWRP			37000	Sodium_Chloride_Rock_Salt
3	SWRP			56000	Sodium_Chloride_Rock_Salt
4	SWRP			61000	Sodium_Chloride_Rock_Salt
5	SWRP			73568	Sodium_Chloride_Rock_Salt
6	SWRP	0		60000	Sodium_Chloride_Rock_Salt
7	SWRP	0		60000	Sodium_Chloride_Rock_Salt
8	SWRP			73568	Sodium_Chloride_Rock_Salt
9	SWRP	0		60000	Sodium_Chloride_Rock_Salt
10	SWRP			73600	Sodium_Chloride_Rock_Salt
11	SWRP	0		60000	Sodium_Chloride_Rock_Salt
12	SWRP	1		60000	Brine_Solution,Sodium_Chloride_Rock_Salt
13	SWRP	0		60000	Sodium_Chloride_Rock_Salt
14	SWRP		24		
15	SWRP		24		
16	SWRP		24		
17	SWRP		24		
18	SWRP		24		
19	SWRP		24		
20	SWRP		36		
21	SWRP		24		
22	SWRP		36		
23	SWRP		12		
24	SWRP		12		
25	SWRP		12		
26	SWRP		12		
27	SWRP		12		
28	SWRP		12		
29	SWRP		12		

Organization Name: Metropolitan Water Reclamation District of Greater Chicago

Chloride TLWQS Annual Report
Appendix 3 - Callouts

Callout #	Methods used before applying deicer materials?	Comments
1	Plowing,Sweeping	
2	Plowing	
3	Shovelling	
4	Shovelling	
5		
6	Shovelling	Wet snow melted quickly, used hand spreaders for application.
7	None	Wind driven sleet and icy sidewalks
8		
9	Shovelling	Icy
10	Plowing	
11	Shovelling	Wet snow and slippery/icy conditions
12	Shovelling	The attempted anti-icing was only partial due to equipment failure.
13	Shovelling	
14		
15		
16		
17		
18		
19		
20		
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26		
27		
28		
29		

Organization Name: Metropolitan Water Reclamation District of Greater Chicago

Chloride TLWQS Annual Report
Appendix 3 - Callouts

Callout #	Pavement Conditions	Pavement Temperature (°F)	Equipment Other Description	Precipitation Type	Snow Amount (inches)	Storm Length	Wind or Blowing Snow	Sleet Amount (inches)
1	Icy	30		Snow	2		Wind	
2	Icy	30		Snow	2		Wind	
3	Icy	15		Snow	1		Both	
4	Icy	20		Snow	1			
5	Icy							
6	Wet	34	Hand spreaders	Sleet		4:46		0.75
7	Icy	29	SaltDogg drop spreader	Sleet		3:00	Wind	0.05
8	Icy							
9	Icy	289	SaltDogg drop spreader	Snow	0.5	8:00	Wind	
10	Icy			Snow	2			
11	Icy	29	SaltDogg drop spreader	Snow	1.5	5:00		
12	Dry	23	SaltDogg drop spreader	Snow	0.05	7:00		
13	Icy	25	SaltDogg drop spreader	Snow	2	4:04	Blowing Snow	
14								
15								
16								
17								
18								
19								
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24								
25								
26								
27								
28								
29								

Organization Name: Metropolitan Water Reclamation District of Greater Chicago

Chloride TLWQS Annual Report
Appendix 4 - Annual Training

Role in Winter Operations	Training Topics Covered
Laborer	Calibration, Pavement Temperatures, Application Rates, Storage, Environmental Impacts
Laborer Foreman	Calibration, Pavement Temperatures, Application Rates, Storage, Environmental Impacts
Truck Driver	Calibration, Pavement Temperatures, Application Rates, Storage, Environmental Impacts
Truck Driver Foreman	Calibration, Pavement Temperatures, Application Rates, Storage, Environmental Impacts
Managers	Calibration, Pavement Temperatures, Application Rates, Storage, Environmental Impacts

Organization Name: Metropolitan Water Reclamation District of Greater Chicago

Chloride TLWQS Annual Report
Appendix 5 - Equipment

Type of Equipment	Equipment/Vehicle Number	Type of Spreader (mechanically controlled, computer controlled, etc.)	Type of Material Used with Equipment (Dry, Pre-Wet, Pretreated, Liquids)	Other Important Equipment Information
Cub Cadet Salt Spreader	N/A	Walk Behind (Mechanical)	Dry	
Spiker ergo Pro	N/A	Walk Behind (Mechanical)	Dry	
Earthway 2050	N/A	Walk Behind (Mechanical)	Dry	
Earthway 2600	2024 delivery (purchase delayed from 2023)	Walk Behind (Mechanical)	Dry	
CHAPIN PROFESSIONAL #82088B	N/A	Walk Behind (Mechanical)	Dry	
SnowEx_Spreader	Kubota TRAC0014	Motorized rotary spreader attachment	Dry	Snowex spreaders on Kubota tractors do not have gate controls to stop salt from flowing out of the hoppers.
SaltDogg Drop Spreader	SaltDogg WB400	Walk Behind Drop Spreader	Dry	
SnowEx_Spreader	Kubota TRAC0020	Motorized rotary spreader attachment	Dry	Snowex spreaders on Kubota tractors do not have gate controls to stop salt from flowing out of the hoppers.
SnowEx_12gal_Sprayer	N/A	Battery operated walk behind	Brine for de-icing	
SnowEx_12gal_Sprayer	N/A	Battery operated walk behind	Brine for de-icing	
Truck	TRUK0078	Mechanical	Brine, Dry	
Truck	TRUK0009	Mechanical	Dry	
Truck	TRUK0007	Mechanical	Brine, Dry	
Truck	TRUK0060	Mechanical	Dry	
Truck	TRUK9910	Mechanical	Brine, Dry	Commissioned POST Season

Organization Name: Metropolitan Water Reclamation District of Greater Chicago

Chloride TLWQS Annual Report
Appendix 6 - Material Storage

Location of Storage Area	Material Stored (Rock Salt, Salt Brine, etc.)	Amount of Material Stored 2022-2023	Amount of Material Stored 2023-2024	Amount of Material Stored 2024-2025	Material stored under permanent cover? (yes/describe other)	Material stored in a fully enclosed structure? (yes/describe other)	Material stored on an impervious pad? (yes/describe other)	Good housekeeping practices followed at storage area? (yes/describe other)
Garage	Bagged salt	120 bags	150 bags	350 bags	Yes	Yes	Yes	Yes
Salt Dome 412 ton capacity	Bulk Rock Salt				Yes	Yes	Yes	Yes

Organization Name: Metropolitan Water Reclamation District of Greater Chicago

Chloride TLWQS Annual Report
Appendix 7 - Capital Purchases

Capital Purchase Description	Plan/Schedule for Purchase
Drop spreaders for Kubota tractors	2026 if suitable drop spreaders are found for existing Kubotas and if budget allows
Spray equipment with 100 gallon tank and spray bar for personel carrier to be used for de-icing sidewalks.	2025-26 if budget allows.
2024 Dump truck , Monroe 13' with spray equipment for prewetting salt	2024 delivery (purchase delayed from 2023)

Organization Name: Metropolitan Water Reclamation District of Greater Chicago

Chloride TLWQS Annual Report
Appendix 8 - Chloride Effluent Values

MWRD Final Effluent from Stickney Water Reclamation Plant

Collection Date	Chloride (mg/L)	Collection Date	Chloride (mg/L)
5/7/24	129.72	12/24/24	187.70
5/14/24	146.80	12/25/24	167.60
5/21/24	156.97	12/26/24	153.41
5/28/24	133.38	12/27/24	179.34
6/4/24	139.83	12/28/24	221.72
6/11/24	142.94	12/29/24	188.31
6/18/24	143.61	12/30/24	124.41
6/25/24	119.03	12/31/24	140.52
7/2/24	99.17	1/1/25	124.75
7/9/24	116.99	1/2/25	153.01
7/16/24	92.39	1/3/25	162.09
7/23/24	111.08	1/4/25	159.27
7/30/24	87.99	1/5/25	152.26
8/6/24	118.53	1/6/25	158.49
8/13/24	126.54	1/7/25	168.46
8/20/24	126.42	1/8/25	175.62
8/27/24	120.23	1/9/25	168.18
9/3/24	130.03	1/10/25	169.93
9/10/24	144.11	1/11/25	372.51
9/17/24	125.86	1/12/25	479.68
9/24/24	105.84	1/13/25	477.27
10/1/24	98.09	1/14/25	
10/8/24	146.63	1/15/25	283.49
10/15/24	136.31	1/16/25	214.88
10/22/24	131.17	1/17/25	202.79
10/29/24	120.96	1/18/25	220.23
11/5/24	87.02	1/19/25	223.13
11/12/24	115.40	1/20/25	207.91
11/19/24	89.24	1/21/25	162.20
11/26/24	147.61	1/22/25	152.51
12/3/24	152.49	1/23/25	156.50
12/10/24	143.47	1/24/25	219.01
12/11/24	152.16	1/25/25	200.85
12/12/24	149.07	1/26/25	174.16
12/13/24	144.75	1/27/25	156.87
12/14/24	149.37	1/28/25	150.22
12/15/24	171.39	1/29/25	164.56
12/16/24	175.08	1/30/25	171.89
12/17/24	161.12	1/31/25	491.61
12/18/24	149.47	2/1/25	309.26
12/19/24	146.10	2/2/25	295.55
12/20/24	189.16	2/3/25	264.95
12/21/24	410.79	2/4/25	244.27
12/22/24	289.11	2/5/25	229.99
12/23/24	223.68	2/6/25	237.73

Organization Name: Metropolitan Water Reclamation District of Greater Chicago

Chloride TLWQS Annual Report
Appendix 8 - Chloride Effluent Values

MWRD Final Effluent from Stickney Water Reclamation Plant

Collection Date	Chloride (mg/L)	Collection Date	Chloride (mg/L)
2/7/25	265.06	3/24/25	253.92
2/8/25	230.17	3/25/25	249.41
2/9/25	226.04	3/26/25	242.98
2/10/25	217.99	3/27/25	232.76
2/11/25	193.25	3/28/25	220.37
2/12/25	191.51	3/29/25	214.16
2/13/25	447.66	3/30/25	229.06
2/14/25	790.66	3/31/25	191.69
2/15/25	579.91	4/1/25	206.43
2/16/25	791.31	4/2/25	172.10
2/17/25	657.77	4/3/25	171.03
2/18/25	414.96	4/4/25	206.47
2/19/25	304.19	4/5/25	200.17
2/20/25	241.66	4/6/25	176.13
2/21/25	211.78	4/7/25	183.40
2/22/25	234.67	4/8/25	188.59
2/23/25	246.98	4/9/25	184.18
2/24/25	257.60	4/10/25	179.84
2/25/25	255.09	4/11/25	177.17
2/26/25	310.18	4/12/25	167.26
2/27/25	439.07	4/13/25	161.82
2/28/25	377.70	4/14/25	165.61
3/1/25	337.57	4/15/25	182.01
3/2/25	308.39	4/16/25	174.97
3/3/25	272.77	4/17/25	168.05
3/4/25	261.40	4/18/25	176.16
3/5/25	316.08	4/19/25	180.25
3/6/25	317.26	4/20/25	172.47
3/7/25	311.04	4/21/25	140.22
3/8/25	322.69	4/22/25	151.23
3/9/25	290.77	4/23/25	160.60
3/10/25	264.54	4/24/25	163.98
3/11/25	252.84	4/25/25	170.07
3/12/25	254.09	4/26/25	146.31
3/13/25	243.96	4/27/25	156.49
3/14/25	228.33	4/28/25	163.64
3/15/25	215.66	4/29/25	171.48
3/16/25	218.90	4/30/25	176.58
3/17/25	230.22		
3/18/25	232.44		
3/19/25	229.36		
3/20/25	249.97		
3/21/25	309.48		
3/22/25	280.06		
3/23/25	261.53		