

Protecting Our Water Environment



Metropolitan Water Reclamation District of Greater Chicago

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November 9, 2022

Mr. Darin E. LeCrone, P.E.
Manager, Permit Section
Illinois Environmental Protection Agency
Division of Water Pollution Control
P.O. Box 19276
Springfield, IL 62794-9276

Subject: Metropolitan Water Reclamation District of Greater Chicago (District)
Chloride Time Limited Water Quality Standard (TLWQS)
Pollutant Minimization Plan (PMP)

Dear Mr. LeCrone:

In accordance with Section 2.A of the NPDES Permits listed below, please find enclosed the Chloride Time Limited Water Quality Standard Pollutant Minimization Plans for the following facilities:

<u>Facility</u>	<u>NPDES No.</u>
Stickney WRP	ILG103017
O'Brien WRP	ILG103018
Calumet WRP	ILG103014
Lemont WRP	ILG103019
Lockport Powerhouse	ILG103016

If you have any questions regarding this submittal, please contact Ms. Ann Ko, Principal Engineer, at 312-751-6553.

Sincerely,

John P. Murray

EJS

EJS:JS:AK:TS

Enclosures

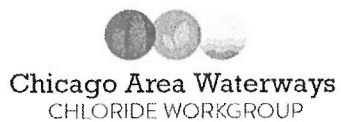
c: Jennifer Hammer, Lower Des Plaines Watershed Group

Hanna Miller, Chicago Area Waterways Chloride Workgroup

Chloride Pollutant Minimization Plan for The Metropolitan Water Reclamation District of Greater Chicago – Stickney WRP

November 9, 2022

Prepared by the Metropolitan Water Reclamation District of Greater Chicago (District)



The District is a member of the Chicago
Area Waterways Chloride
Workgroup/Lower Des Plaines Watershed
Group



1.0 Introduction to Chloride Issue in CAWS/LDPR

This Pollutant Minimization Plan (PMP) has been prepared by the District to reduce the environmental impacts from the organization's chloride related operations. The District 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 PMP has been prepared to meet the requirements laid out in the Time Limited Water Quality Standard (TLWQS) for Chloride. The term of this PMP covers the first 5-years of the TLWQS period and will be updated following the re-evaluations at Years 4 ½, 9 ½, and 14 ½.

Chloride is a permanent pollutant. It 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 Plaines 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 Info, Facilities' Specific Info

2.1 Facility overviews/descriptions

Agency Name: The 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: 60804

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.

2.2 Chloride Sources

The primary source of chlorides at this location is winter road, parking lot, and sidewalk maintenance.

Roads and parking lots are cleared with plow trucks and loaders, and salt is applied, if needed. Sidewalks are cleared with smaller machinery, blowers and manual shoveling. Brine is used to pre-wet the salt as it is spread from dump trucks.

Bulk salt is stored in a salt dome. Bagged salt (prepackaged fifty-pound bags) used for sidewalk and entryway maintenance is stored indoors, e.g. warehouse or garages.

2.3 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 Chloride Monitoring Data

Chloride monitoring data will be collected for the CAWS and Lower Des Plaines River watersheds per the IPCB order. The data will be maintained by the workgroups. Chloride data for the CAWS will be 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.

The MWRD will collect hourly conductivity data at nine Continuous Dissolved Oxygen Monitoring stations, chloride data at all 15 ambient Water Quality Monitoring(AWQM) station identified in Attachment A of the NPDES Permit ILG103, and derive hourly chloride estimates from the nine CDOM stations by using the hourly conductivity data from nine CDOM stations, the chloride data from the AWQM stations located near the CDOM stations, and a linear regression model.

4.0 Chloride Reduction BMPs for POTWs, MS4s, CSOs, Industrial Sources, IDOT/Tollway

As part of the Chloride TLWQS, specific BMPs were identified for POTWs, MS4s, CSOs, Industrial Sources, and IDOT/Tollway to reduce the chloride impact on the watershed. These BMPs will be implemented over the 15-year term and additional BMPs evaluated at 5-year intervals during the 15-year term. The BMPs identified are outlined below:

Workgroup BMP

Variance BMP	Currently Implementing	Will Implement (Target Year)	Agency Description of Current Implementation
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.	X		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

Variance BMP	Currently Implementing	Will Implement (Target Year)	Agency Description of Current Implementation
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.	X		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 approximately 412 tons. Bagged salt is stored indoors.
Cover salt piles at all times except when in active use, unless stored indoors.	N/A		N/A
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.	X		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		N/A
Good housekeeping practices must be implemented at the site, including: <ul style="list-style-type: none"> cleanup of salt at the end of each day or conclusion of a storm event; 			Current good housekeeping practices: Cleanup of salt at the end of each storm event. Maintaining equipment

<ul style="list-style-type: none"> • 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. 	X		<p>Cleanup spreading equipment after each snow/ice event</p> <p>Written inspection program for storage facility (through GASB 34).</p>
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Winter Maintenance Operations BMPs

Variance BMP	Currently Implementing	Will Implement (Target Year)	Agency Description of Current Implementation
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.	X		Will calibrate for 2022-2023 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.	X		Where pre-wetting is not available on trucks, pre-wetting will be done at stock piles.
Use equipment to measure the pavement temperature unless such equipment has already been installed on road salt spreading vehicles.	X		Handheld temp sensor to be used.
Develop and implement a protocol to vary the salt application rate based on pavement temperature, existing	X		Staff will measure pavement temperature and adjust application rates.

weather conditions, and forecasted weather conditions.			
Track and record salt quantity used and storm conditions from each call-out.	X		IT is developing tracking system
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.		2022 - 2025	
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.	X		Employees have yearly training.
Be responsible for complying with all applicable BMPs even when deicing practices are contracted out and ensure that contractors are properly trained and comply with all applicable BMPs.	N/A		N/A
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.		2023	
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.	X		Pre-wetting packages are added to new equipment purchases.
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			N/A

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

5.0 Plan to Implement BMPs

The District will implement the following BMPs to take steps towards compliance with chloride standards for the watershed.

BMP: 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.

Plan To Implement BMP: The District will develop a written plan for the implementation of additional anti-icing strategies over the next three years to allow for planning, budgeting and procurement of additional equipment.

Schedule for Implementation: Implementation 2023-25.

6.0 Other Chloride TLWQS Required Milestones

The District will implement these specific milestones (not included in the above BMPs) as outlined by the Chloride TLWQS.

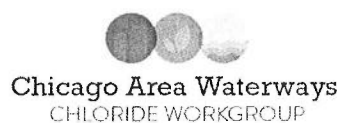
Milestone	Agency Completion Date	Agency Completion Details
6 MONTHS AFTER EFFECTIVE DATE: Petitioner establishes a mechanism for tracking of de-icing salt usage for each facility.	IT is developing a tool for tracking metrics for 2022-23 season.	IT is developing a tool for tracking metrics for 2022-23 season.
July 1st OF EVERY YEAR (BEGINNING WITH YEAR 2): Discharger must submit an Annual Report for the previous year beginning on May 1 and ending on April 30 of the following year to the Agency and the chlorides workgroup on. The report shall be on salt usage for		

deicing and steps taken to minimize salt use and makes the report publicly available.		
<p>July 1st of YEAR 3, YEAR 8 and YEAR 13: The chlorides workgroup submits a Status Report to the IEPA which includes an analysis on the following: chlorides monitoring data; report on the chloride workgroup's outreach strategy, which includes outreach efforts to expand coverage of the TLWQS, and outreach and training for nonpoint sources; identification of any new BMPs, treatment technology or salt alternatives; identification of the impediments and potential solutions of those impediments faced by dischargers and those granted coverage under the TLWQS that prevent them from completing the training and making all capital purchases necessary to implement the required BMPs; and identification and description of any assistance (financial, technical, or otherwise) that the chloride workgroup may be able to provide.</p>		
<p>July 1st OF YEAR 4 ½: Chlorides workgroup submits to the Board its first proposed re-evaluation pleading consistent with the Board's order granting the TLWQS.</p>		

Chloride Pollutant Minimization Plan for The Metropolitan Water Reclamation District of Greater Chicago – O'Brien WRP

November 9, 2022

Prepared by the Metropolitan Water Reclamation District of Greater Chicago (District)



The District is a member of the Chicago
Area Waterways Chloride
Workgroup/Lower Des Plaines Watershed
Group



1.0 Introduction to Chloride Issue in CAWS/LDPR

This Pollutant Minimization Plan (PMP) has been prepared by the District to reduce the environmental impacts from the organization's chloride related operations. The District 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 PMP has been prepared to meet the requirements laid out in the Time Limited Water Quality Standard (TLWQS) for Chloride. The term of this PMP covers the first 5-years of the TLWQS period and will be updated following the re-evaluations at Years 4 ½, 9 ½, and 14 ½.

Chloride is a permanent pollutant. It 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 Plaines 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 Info, Facilities' Specific Info

2.1 Facility overviews/descriptions

Agency Name: The Metropolitan Water Reclamation District of Greater Chicago		
Facility Name: O'Brien WRP		Permit Number: IL00 28088
Facility Address: 3500 W. Howard St.		
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 a day and a design maximum flow of 450 million gallons a day.

2.2 Chloride Sources

The primary source of chlorides at this location is winter road, parking lot, and sidewalk maintenance.

O'Brien WRP maintains nonpublic roads within the O'Brien WRP and various outlying District facilities. Sodium chloride is used on roads and bagged chloride mixes are used on sidewalks.

Roads and parking lots are cleared with plow trucks and salt is applied, if needed. Sidewalks are cleared with smaller machinery, blowers and manual shoveling. O'Brien WRP has a brine making facility to supply brine for pre-wetting and use on sidewalks.

All bulk salt is stored on impervious surfaces in a covered structure. All bagged salt is stored indoors.

2.3 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 Chloride Monitoring Data

Chloride monitoring data will be collected for the CAWS and Lower Des Plaines River watersheds per the IPCB order. The data will be maintained by the workgroups. Chloride data for the CAWS will be 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.

The MWRD will collect hourly conductivity data at nine Continuous Dissolved Oxygen Monitoring stations, chloride data at all 15 ambient Water Quality Monitoring(AWQM) station identified in Attachment A of the NPDES Permit ILG103, and derive hourly chloride estimates from the nine CDOM stations by using the hourly conductivity data from nine CDOM stations, the chloride data from the AWQM stations located near the CDOM stations, and a linear regression model.

4.0 Chloride Reduction BMPs for POTWs, MS4s, CSOs, Industrial Sources, IDOT/Tollway

As part of the Chloride TLWQS, specific BMPs were identified for POTWs, MS4s, CSOs, Industrial Sources, and IDOT/Tollway to reduce the chloride impact on the watershed. These BMPs will be implemented over the 15-year

term and additional BMPs evaluated at 5-year intervals during the 15-year term. The BMPs identified are outlined below:

Workgroup BMP

Variance BMP	Currently Implementing	Will Implement (Target Year)	Agency Description of Current Implementation
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.	X		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

Variance BMP	Currently Implementing	Will Implement (Target Year)	Agency Description of Current Implementation
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.	X		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.	X		N/A
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.		2023-25	OWRPs bulk salt working is minimal. We try to only do salt loading on dry days. We clean the area afterwards. Sidewalk clearing machinery salt loading is done inside a garage with bagged salt. The minimal spillage is swept and removed.
MS4/CSO Only - Use deicing material storage structures for all communities covered under General Permit ILR40 for MS4 communities.	N/A	N/A	N/A

<p>Good housekeeping practices must be implemented at the site, including:</p> <ul style="list-style-type: none"> • 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. 	X		<p>Excess salt gets swept up after storm events</p> <p>All loose salt gets swept back into the bulk piles after unloading.</p> <p>All tools and equipment used for snow and ice removal get placed in a storage location at the end of winter</p> <p>All equipment receives regular maintenance at the end of the season. All repairs are completed when needed.</p>
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Winter Maintenance Operations BMPs

Variance BMP	Currently Implementing	Will Implement (Target Year)	Agency Description of Current Implementation
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.	X		Will calibrate for 2022-2023 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.	X		Where pre-wetting is not available on trucks, pre-wetting will be done at stock piles. Primary truck has pre-wetting capability.
Use equipment to measure the pavement temperature unless such equipment has already been	X		Handheld temp sensor to be used. New plow trucks will have temp sensors.

installed on road salt spreading vehicles.			
Develop and implement a protocol to vary the salt application rate based on pavement temperature, existing weather conditions, and forecasted weather conditions.	X		Staff will measure pavement temperature and adjust application rates.
Track and record salt quantity used and storm conditions from each call-out.	X		IT is developing tracking system for all MWRD sites for 2022-23 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.		2022-2025	
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.	X		Employees attend training seminars.
Be responsible for complying with all applicable BMPs even when deicing practices are contracted out and ensure that contractors are properly trained and comply with all applicable BMPs.	N/A		N/A
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.		2023	
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.	X		OWRP has pre-wetting capabilities and pre-wetting packages will be added to new equipment purchases.
MS4/CSO/IDOT/TOLLWAY Only - Install equipment to measure the pavement temperature on the	N/A	N/A	N/A

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.			
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	N/A	N/A

5.0 Plan to Implement BMPs

The District will implement the following BMPs to take steps towards compliance with chloride standards for the watershed.

BMP: 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.

Plan To Implement BMP: The District will develop a written plan for the implementation of additional anti-icing strategies over the next three years to allow for planning, budgeting and procurement of additional equipment.

Schedule for Implementation: Implementation 2023-25.

BMP: Track and record salt quantity used and storm conditions from each call-out.

Plan To Implement BMP: KWRP will keep an inventory of bagged and bulk salt. The inventory will be taken after each storm event to track usage. MWRD NSA will also be utilizing a digital form to track the required data for each storm event.

6.0 Other Chloride TLWQS Required Milestones

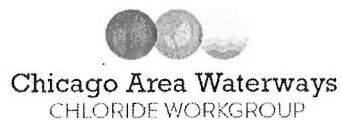
The District will implement these specific milestones (not included in the above BMPs) as outlined by the Chloride TLWQS.

Milestone	Agency Completion Date	Agency Completion Details
6 MONTHS AFTER EFFECTIVE DATE: Petitioner establishes a mechanism for tracking of de-icing salt usage for each facility.	IT is developing a tool for tracking metrics for 2022-23 season.	IT is developing a tool for tracking metrics for 2022-23 season.
July 1st OF EVERY YEAR (BEGINNING WITH YEAR 2): Discharger must submit an Annual Report for the previous year beginning on May 1 and ending on April 30 of the following year to the Agency and the chlorides workgroup on. The report shall be on salt usage for deicing and steps taken to minimize salt use and makes the report publicly available.		
July 1st of YEAR 3, YEAR 8 and YEAR 13: The chlorides workgroup submits a Status Report to the IEPA which includes an analysis on the following: chlorides monitoring data; report on the chloride workgroup's outreach strategy, which includes outreach efforts to expand coverage of the TLWQS, and outreach and training for nonpoint sources; identification of any new BMPs, treatment technology or salt alternatives; identification of the impediments and potential solutions of those impediments faced by dischargers and those granted coverage under the TLWQS that prevent them from completing the training and making all capital purchases necessary to implement the required BMPs; and identification and description of any assistance (financial, technical, or otherwise) that the chloride workgroup may be able to provide.		
July 1st OF YEAR 4 ½: Chlorides workgroup submits to the Board its first proposed re-evaluation pleading consistent with the Board's order granting the TLWQS.		

Chloride Pollutant Minimization Plan for The Metropolitan Water Reclamation District of Greater Chicago – Calumet WRP

November 9, 2022

Prepared by the Metropolitan Water Reclamation District of Greater Chicago (District)



The District is a member of the Chicago
Area Waterways Chloride
Workgroup/Lower Des Plaines Watershed
Group



1.0 Introduction to Chloride Issue in CAWS/LDPR

This Pollutant Minimization Plan (PMP) has been prepared by to reduce the environmental impacts from the organization's chloride related operations. 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 PMP has been prepared to meet the requirements laid out in the Time Limited Water Quality Standard (TLWQS) for Chloride. The term of this PMP covers the first 5-years of the TLWQS period and will be updated following the re-evaluations at Years 4 ½, 9 ½, and 14 ½.

Chloride is a permanent pollutant. It 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 Plaines 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 Info, Facilities' Specific Info

2.1 Facility overviews/descriptions

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 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 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. 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.

2.2 Chloride Sources

The primary source of chlorides at this location is winter road, parking lot, and sidewalk maintenance.

During winter, dump trucks with salt spreaders first focus on the roads coming into the plant and areas around buildings with staff. Pick-up trucks with salt spreaders will focus on smaller parking lots and operational areas. Once these areas are done, pick-up trucks will work on the outlying stations. Loaders are responsible for all the bigger parking lots and additional operational areas. Buildings and Grounds staff perform snow removal for sidewalks and building entrances.

A new dome is being constructed in 2022 for bulk salt storage. Salt in bags is currently stored indoors.

2.3 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 Chloride Monitoring Data

Chloride monitoring data will be collected for the CAWS and Lower Des Plaines River watersheds per the IPCB order. The data will be maintained by the workgroups. Chloride data for the CAWS will be 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.

The MWRD will collect hourly conductivity data at nine Continuous Dissolved Oxygen Monitoring stations, chloride data at all 15 ambient Water Quality Monitoring (AWQM) station identified in Attachment A of the NPDES Permit ILG103, and derive hourly chloride estimates from the nine CDOM stations by using the hourly

conductivity data from nine CDOM stations, the chloride data from the AWQM stations located near the CDOM stations, and a linear regression model.

4.0 Chloride Reduction BMPs for POTWs, MS4s, CSOs, Industrial Sources, IDOT/Tollway

As part of the Chloride TLWQS, specific BMPs were identified for POTWs, MS4s, CSOs, Industrial Sources, and IDOT/Tollway to reduce the chloride impact on the watershed. These BMPs will be implemented over the 15-year term and additional BMPs evaluated at 5-year intervals during the 15-year term. The BMPs identified are outlined below:

Workgroup BMP

Variance BMP	Currently Implementing	Will Implement (Target Year)	Agency Description of Current Implementation
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.	X		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

Variance BMP	Currently Implementing	Will Implement (Target Year)	Agency Description of Current Implementation
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.	X		Bulk salt is currently stockpiled on a concrete pad on the east side of the Truck Wash Building (Bldg. 49). Bagged salt is stored inside Paint Building (Bldg. 36).
Cover salt piles at all times except when in active use, unless stored indoors.	X		A new bulk storage facility with a dome is being built in 2022.

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.		2023	A new bulk storage facility with a dome is being built in 2022. Drainage around the dome working area will be reviewed in 2023.
MS4/CSO Only - Use deicing material storage structures for all communities covered under General Permit ILR40 for MS4 communities.	N/A	N/A	N/A
<p>Good housekeeping practices must be implemented at the site, including:</p> <ul style="list-style-type: none"> • 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; 	X		<p>At the conclusion of a storm event, crews clean around the bags of salt. Staff sweep and return spilled salt to the bulk stockpile.</p> <p>Bulk salt is delivered by the vendor.</p> <p>Salt spreading and snow blower equipment are maintained regularly by cleaning and inspecting them after use and doing repairs as necessary.</p> <p>Staff 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.</p> <p>Equipment is cleaned after each snow event.</p>

<ul style="list-style-type: none"> • 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. 			Any surplus materials used in the snow removal are removed from the site and stored in an enclosed area for future use.
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Winter Maintenance Operations BMPs

Variance BMP	Currently Implementing	Will Implement (Target Year)	Agency Description of Current Implementation
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.	X		Will calibrate for 2022-2023 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.	X		Where pre-wetting is not available on trucks, pre-wetting will be done at stock piles.

Use equipment to measure the pavement temperature unless such equipment has already been installed on road salt spreading vehicles.	X		Handheld temp sensor to be used.
Develop and implement a protocol to vary the salt application rate based on pavement temperature, existing weather conditions, and forecasted weather conditions.	X		Staff will measure pavement temperature and adjust application rates.
Track and record salt quantity used and storm conditions from each call-out.	X		IT is developing tracking system for all MWRD sites for 2022-23 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.		2023-25	
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.	X		Employees attend training seminars.
Be responsible for complying with all applicable BMPs even when deicing practices are contracted out and ensure that contractors are properly trained and comply with all applicable BMPs.	N/A		N/A
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.		2023	

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.	X		Pre-wetting packages will be added to new equipment purchases.
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		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 developed, the review should occur annually in the spring/early summer following each winter season.	N/A		N/A

5.0 Plan to Implement BMPs

List BMPs that will be implemented from the above tables, these are the BMPs your agency is currently not already doing. List out the BMP to be implemented and describe your plan to implement that BMP with measurable goals and what the timeline/schedule for the implementation will be. Also describe any barriers to implementing the BMPs (financial, etc). The plans and schedule should be detailed enough to reflect what your agency needs to do to implement the BMP. See the highlighted example below.

The District will implement the following BMPs to take steps towards compliance with chloride standards for the watershed.

BMP: 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.

Plan To Implement BMP: The District will develop a written plan for the implementation of additional anti-icing strategies over the next three years to allow for planning, budgeting and procurement of additional equipment.

Schedule for Implementation: Implementation 2023-25.

6.0 Other Chloride TLWQS Required Milestones

The District will implement these specific milestones (not included in the above BMPs) as outlined by the Chloride TLWQS.

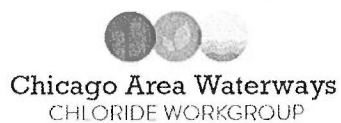
Milestone	Agency Completion Date	Agency Completion Details
6 MONTHS AFTER EFFECTIVE DATE: Petitioner establishes a mechanism for tracking of de-icing salt usage for each facility.	IT is developing a tool for tracking metrics for 2022-23 season.	IT is developing a tool for tracking metrics for 2022-23 season.
July 1st OF EVERY YEAR (BEGINNING WITH YEAR 2): Discharger must submit an Annual Report for the previous year beginning on May 1 and ending on April 30 of the following year to the Agency and the chlorides workgroup on. The report shall be on salt usage for deicing and steps taken to minimize salt use and makes the report publicly available.		

<p>July 1st of YEAR 3, YEAR 8 and YEAR 13: The chlorides workgroup submits a Status Report to the IEPA which includes an analysis on the following: chlorides monitoring data; report on the chloride workgroup's outreach strategy, which includes outreach efforts to expand coverage of the TLWQS, and outreach and training for nonpoint sources; identification of any new BMPs, treatment technology or salt alternatives; identification of the impediments and potential solutions of those impediments faced by dischargers and those granted coverage under the TLWQS that prevent them from completing the training and making all capital purchases necessary to implement the required BMPs; and identification and description of any assistance (financial, technical, or otherwise) that the chloride workgroup may be able to provide.</p>		
<p>July 1st OF YEAR 4 ½: Chlorides workgroup submits to the Board its first proposed re-evaluation pleading consistent with the Board's order granting the TLWQS.</p>		

Chloride Pollutant Minimization Plan for The Metropolitan Water Reclamation District of Greater Chicago – Lemont WRP

November 9, 2022

Prepared by the Metropolitan Water Reclamation District of Greater Chicago (District)



The District is a member of the Chicago
Area Waterways Chloride
Workgroup/Lower Des Plaines Watershed
Group



1.0 Introduction to Chloride Issue in CAWS/LDPR

This Pollutant Minimization Plan (PMP) has been prepared by to reduce the environmental impacts from the organization's chloride related operations. 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 PMP has been prepared to meet the requirements laid out in the Time Limited Water Quality Standard (TLWQS) for Chloride. The term of this PMP covers the first 5-years of the TLWQS period and will be updated following the re-evaluations at Years 4 ½, 9 ½, and 14 ½.

Chloride is a permanent pollutant. It 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 Plaines 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 Info, Facilities' Specific Info

2.1 Facility overviews/descriptions

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 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 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 day and can treat 4 million gallons per day.

2.2 Chloride Sources

The primary source of chlorides at this location is winter road, parking lot, and sidewalk maintenance.

Plant staff initiate shoveling/salting in key areas, such as the walkway from the parking lot to the main door, the area around any exterior doors to the main building, and the pathway leading to the sampling points of the aeration tanks, until truck drivers and laborers arrive from the Calumet WRP.

For Lemont WRP, bagged salt is stored on the South Side of the Truck Loading Garage. Bulk salt is not stored at the facility.

2.3 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 Chloride Monitoring Data

Chloride monitoring data will be collected for the CAWS and Lower Des Plaines River watersheds per the IPCB order. The data will be maintained by the workgroups. Chloride data for the CAWS will be 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.

The MWRD will collect hourly conductivity data at nine Continuous Dissolved Oxygen Monitoring stations, chloride data at all 15 ambient Water Quality Monitoring (AWQM) station identified in Attachment A of the NPDES Permit ILG103, and derive hourly chloride estimates from the nine CDOM stations by using the hourly conductivity data from nine CDOM stations, the chloride data from the AWQM stations located near the CDOM stations, and a linear regression model.

4.0 Chloride Reduction BMPs for POTWs, MS4s, CSOs, Industrial Sources, IDOT/Tollway

As part of the Chloride TLWQS, specific BMPs were identified for POTWs, MS4s, CSOs, Industrial Sources, and IDOT/Tollway to reduce the chloride impact on the watershed. These BMPs will be implemented over the 15-year term and additional BMPs evaluated at 5-year intervals during the 15-year term. The BMPs identified are outlined below:

Workgroup BMP

Variance BMP	Currently Implementing	Will Implement (Target Year)	Agency Description of Current Implementation
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.	X		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

Variance BMP	Currently Implementing	Will Implement (Target Year)	Agency Description of Current Implementation
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.	X		Bagged salt is stored in a garage.
Cover salt piles at all times except when in active use, unless stored indoors.	N/A		
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.	N/A		

MS4/CSO Only - Use deicing material storage structures for all communities covered under General Permit ILR40 for MS4 communities.	N/A		N/A
<p>Good housekeeping practices must be implemented at the site, including:</p> <ul style="list-style-type: none"> • 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. 	X		<p>At the conclusion of a storm event, crews clean around the bags of salt.</p> <p>Bulk salt is not stored at the facility.</p> <p>Salt spreading and snow blower equipment are maintained regularly by cleaning and inspecting them after use and doing repairs as necessary.</p>

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Winter Maintenance Operations BMPs

Variance BMP	Currently Implementing	Will Implement (Target Year)	Agency Description of Current Implementation
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.	X		Will calibrate for 2022-2023 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.	X		Where pre-wetting is not available on trucks, pre-wetting will be done at stockpiles. Note – no bulk storage at this facility.
Use equipment to measure the pavement temperature unless such equipment has already been installed on road salt spreading vehicles.	X		Handheld temp sensor to be used.
Develop and implement a protocol to vary the salt application rate based on pavement temperature, existing weather conditions, and forecasted weather conditions.	X		Staff will measure pavement temperature and adjust application rates.
Track and record salt quantity used and storm conditions from each call-out.	X		IT is developing tracking system
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.		2023-25	
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	X		

practice of plowing first and applying salt only after snow has been cleared.			
Be responsible for complying with all applicable BMPs even when deicing practices are contracted out and ensure that contractors are properly trained and comply with all applicable BMPs.	N/A		N/A
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.		2023	
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.	X		Pre-wetting packages will be added to new equipment purchases.
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	Not Applicable	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	Not Applicable	Not Applicable

5.0 Plan to Implement BMPs

List BMPs that will be implemented from the above tables, these are the BMPs your agency is currently not already doing. List out the BMP to be implemented and describe your plan to implement that BMP with measurable goals and what the timeline/schedule for the implementation will be. Also describe any barriers to implementing the BMPs (financial, etc). The plans and schedule should be detailed enough to reflect what your agency needs to do to implement the BMP. See the highlighted example below.

The District will implement the following BMPs to take steps towards compliance with chloride standards for the watershed.

BMP: 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.

Plan To Implement BMP: The District will develop a written plan for the implementation of additional anti-icing strategies over the next three years to allow for planning, budgeting and procurement of additional equipment.

Schedule for Implementation: Implementation 2023-25.

6.0 Other Chloride TLWQS Required Milestones

The District will implement these specific milestones (not included in the above BMPs) as outlined by the Chloride TLWQS.

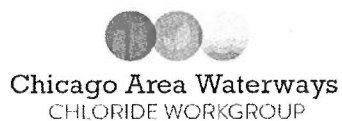
Milestone	Agency Completion Date	Agency Completion Details
6 MONTHS AFTER EFFECTIVE DATE: Petitioner establishes a mechanism for tracking of de-icing salt usage for each facility.	IT is developing a tool for tracking metrics for 2022-23 season.	IT is developing a tool for tracking metrics for 2022-23 season.
July 1st OF EVERY YEAR (BEGINNING WITH YEAR 2): Discharger must submit an Annual Report for the previous year beginning on May 1 and ending on April 30 of the following year to the Agency and the chlorides workgroup on. The report shall be on salt usage for deicing and steps taken to minimize salt use and makes the report publicly available.		

<p>July 1st of YEAR 3, YEAR 8 and YEAR 13: The chlorides workgroup submits a Status Report to the IEPA which includes an analysis on the following: chlorides monitoring data; report on the chloride workgroup's outreach strategy, which includes outreach efforts to expand coverage of the TLWQS, and outreach and training for nonpoint sources; identification of any new BMPs, treatment technology or salt alternatives; identification of the impediments and potential solutions of those impediments faced by dischargers and those granted coverage under the TLWQS that prevent them from completing the training and making all capital purchases necessary to implement the required BMPs; and identification and description of any assistance (financial, technical, or otherwise) that the chloride workgroup may be able to provide.</p>		
<p>July 1st OF YEAR 4 ½: Chlorides workgroup submits to the Board its first proposed re-evaluation pleading consistent with the Board's order granting the TLWQS.</p>		

Chloride Pollutant Minimization Plan for MWRD – Lockport Powerhouse

November 9, 2022

Prepared by Metropolitan Water Reclamation District of Greater Chicago



The Metropolitan Water Reclamation District is a member of the Chicago Area Waterways Chloride Workgroup



1.0 Introduction to Chloride Issue in CAWS/LDPR

This Pollutant Minimization Plan (PMP) has been prepared by Metropolitan Water Reclamation District of Greater Chicago to reduce the environmental impacts from the organization's chloride related operations. The Lockport Powerhouse 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 PMP has been prepared to meet the requirements laid out in the Time Limited Water Quality Standard (TLWQS) for Chloride. The term of this PMP covers the first 5-years of the TLWQS period and will be updated following the re-evaluations at Years 4 ½, 9 ½, and 14 ½.

Chloride is a permanent pollutant. It 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 Plaines 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 Info, Facilities' Specific Info.

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.

2.1 Facility overviews/descriptions

Agency Name: Metropolitan Water Reclamation District of Greater Chicago		
Facility Name: Lockport Powerhouse		Permit Number: IL0077305
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 from the Stickney Water Reclamation Plant. The facility has an approximate 2-mile entrance road that is maintained and a small parking lot.

2.2 Chloride Sources

The primary source of chlorides at this location is winter road, parking lot, and sidewalk maintenance. Snow removal and salting is performed by District staff, primarily from the Stickney WRP. A small amount of salt is stored in bags in a garage at the Lockport Powerhouse.

2.3 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 Chloride Monitoring Data

Chloride monitoring data will be collected for the CAWS and Lower Des Plaines River watersheds per the IPCB order. The data will be maintained by the workgroups. Chloride data for the CAWS will be 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.

The MWRD will collect hourly conductivity data at nine Continuous Dissolved Oxygen Monitoring stations, chloride data at all 15 ambient Water Quality Monitoring (AWQM) stations identified in Attachment A of the NPDES Permit ILG103, and derive hourly chloride estimates from the nine CDOM stations by using the hourly conductivity data from nine CDOM stations, the chloride data from the AWQM stations located near the CDOM stations, and a linear regression model.

4.0 Chloride Reduction BMPs for POTWs, MS4s, CSOs, Industrial Sources, IDOT/Tollway

As part of the Chloride TLWQS, specific BMPs were identified for POTWs, MS4s, CSOs, Industrial Sources, and IDOT/Tollway to reduce the chloride impact on the watershed. These BMPs will be implemented over the 15-year term and additional BMPs evaluated at 5-year intervals during the 15-year term. Further details about winter maintenance practices currently being implemented by the Metropolitan Water Reclamation District – Lockport

Powerhouse are included in Systems Dispatcher's Manual, Snow Plowing at Lockport section. The BMPs identified are outlined below:

Workgroup BMP

Variance BMP	Currently Implementing	Will Implement (Target Year)	Agency Description of Current Implementation
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.	X		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

Variance BMP	Currently Implementing	Will Implement (Target Year)	Agency Description of Current Implementation
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.	X		No salt pile at this location. Bagged salt pile is stored in the garage with a concrete floor.
Cover salt piles at all times except when in active use, unless stored indoors.	X		No salt pile at this location. Bagged salt pile is stored in the garage with a concrete floor.
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.	X		No salt pile at this location. Bagged salt pile is stored in the garage with a concrete floor.
MS4/CSO Only - Use deicing material storage structures for all communities covered under General Permit ILR40 for MS4 communities.	N/A		N/A

<p>Good housekeeping practices must be implemented at the site, including:</p> <ul style="list-style-type: none"> • 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. 	X		No salt pile at this location. Bagged salt pile is stored in the garage with a concrete floor. Any salt spilled on the floor is swept up.
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Winter Maintenance Operations BMPs

Variance BMP	Currently Implementing	Will Implement (Target Year)	Agency Description of Current Implementation
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.	X		Calibrate 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.	X		Where pre-wetting is not available on trucks, pre-wetting will be done at stock piles.
Use equipment to measure the pavement temperature unless such equipment has already been	X		Handheld temp sensor to be used.

installed on road salt spreading vehicles.			
Develop and implement a protocol to vary the salt application rate based on pavement temperature, existing weather conditions, and forecasted weather conditions.	X		Staff will measure pavement temperature and adjust application rates.
Track and record salt quantity used and storm conditions from each call-out.	X		IT is developing tracking system for all MWRD sites for 2022-23 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.		2023-25	Service is primarily provided by drivers from the Stickney WRP and LPH will incorporate changes as they are implemented at the Stickney WRP.
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.	X		Employees are annually trained in best management practices in winter operations.
Be responsible for complying with all applicable BMPs even when deicing practices are contracted out and ensure that contractors are properly trained and comply with all applicable BMPs.	X		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.	X		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.	X		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	n/a		n/a

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.			
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		n/a

List BMPs that will be implemented from the above tables, these are the BMPs your agency is currently not already doing. List out the BMP to be implemented and describe your plan to implement that BMP with measurable goals and what the timeline/schedule for the implementation will be. Also describe any barriers to implementing the BMPs (financial, etc). The plans and schedule should be detailed enough to reflect what your agency needs to do to implement the BMP. See the highlighted example below.

The District will implement the following BMPs to take steps towards compliance with chloride standards for the watershed.

BMP: 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.

Plan To Implement BMP: The District will develop a written plan for the implementation of additional anti-icing strategies over the next three years to allow for planning, budgeting and procurement of additional equipment.

Schedule for Implementation: Implementation 2023-25.

6.0 Other Chloride TLWQS Required Milestones

The Metropolitan Water Reclamation District of Greater Chicago – Lockport Powerhouse will implement these specific milestones (not included in the above BMPs) as outlined by the Chloride TLWQS.

Milestone	Agency Completion Date	Agency Completion Details
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6 MONTHS AFTER EFFECTIVE DATE: Petitioner establishes a mechanism for tracking of de-icing salt usage for each facility.	IT is developing a tool for tracking metrics for 2022-23 season.	IT is developing a tool for tracking metrics for 2022-23 season.
July 1st OF EVERY YEAR (BEGINNING WITH YEAR 2): Discharger must submit an Annual Report for the previous year beginning on May 1 and ending on April 30 of the following year to the Agency and the chlorides workgroup on. The report shall be on salt usage for deicing and steps taken to minimize salt use and makes the report publicly available.		
July 1st of YEAR 3, YEAR 8 and YEAR 13: The chlorides workgroup submits a Status Report to the IEPA which includes an analysis on the following: chlorides monitoring data; report on the chloride workgroup's outreach strategy, which includes outreach efforts to expand coverage of the TLWQS, and outreach and training for nonpoint sources; identification of any new BMPs, treatment technology or salt alternatives; identification of the impediments and potential solutions of those impediments faced by dischargers and those granted coverage under the TLWQS that prevent them from completing the training and making all capital purchases necessary to implement the required BMPs; and identification and description of any assistance (financial, technical, or otherwise) that the chloride workgroup may be able to provide.		
July 1st OF YEAR 4 ½: Chlorides workgroup submits to the Board its first proposed re-evaluation pleading consistent with the Board's order granting the TLWQS.		