

# Chloride Pollutant Minimization Plan for INEOS Joliet

October 2022

Prepared by INEOS Joliet

INEOS Joliet is a member of the Lower  
Des Plaines Watershed Group



## 1.0 Introduction to Chloride Issue in CAWS/LDPR

This Pollutant Minimization Plan (PMP) has been prepared by INEOS Joliet, LLC (“INEOS”) to reduce the environmental impacts from the organization’s chloride related operations. INEOS 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

Facility Name: INEOS Joliet, LLC		Permit Number: IL103009
Facility Address: 23425 Amoco Rd		
City: Channahon	State: IL	Zip Code: 60410

The INEOS Joliet facility is located on a 270-acre tract of land located in Channahon, Illinois. The site is approximately 41 miles Southwest of Chicago and approximately one-mile Southeast of the Route 6 and I-55 intersection. To the immediate East and Southeast of the facility is the LDPR. The facility employs approximately 220 employees, who operate, maintain, and manage the facility, which operates 24 hours a day, 7 days a week.

The facility has three process units which manufacture isophthalic acid (IPA), maleic anhydride (MAN), and trimellitic anhydride (TMA). The facility is configured with separate and distinct production units. The facility also has one utilities unit and one wastewater treatment unit. These units supply process air and steam to the process units as well as treat any wastewater from the process units. The facility also has several maintenance shops, office buildings, and warehouses. Water for facility processes is withdrawn from on-site groundwater extraction wells.

## **2.2 Chloride Sources**

Chlorides at the INEOS facility are from winter salting activities. INEOS performs salting activities during the winter months to prevent ice formation on roadways, walking paths, and parking lots. Roads and parking lots are salted using INEOS' snow plow truck with an attached salt spreader. Walkways are generally salted by INEOS maintenance department; however, they may be salted on an as needed basis by anyone in the facility.

INEOS stores salt in its salt dome located in the South East portion of the property. The dome houses bulk salt which is located on a concrete pad and covered from inclement weather by the dome. Bags of salt are stored in this area in a covered shed on a concrete pad and also stored inside INEOS' supplies warehouse. During the winter months, INEOS places small storage containers of salt near building entrance. These containers have closing lids.

## **2.3 Level of Service for Winter Maintenance Activities**

INEOS performs salting activities during the winter months to prevent ice formation on roadways, walking paths, and parking lots. INEOS uses its snow plow truck to salt road ways and parking lots. Walk ways are generally salted by hand.

## **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.

## **4.0 Chloride Reduction BMPs**

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		INEOS has been a member of the Lower Des Plaines Watershed Group since 2022. Currently a member of the INOES environmental group participates in group meetings.

### 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		INEOS stores salt in its salt dome located in the South East portion of the property. The dome houses bulk salt which is located on a concrete pad and covered from inclement weather by the dome. Bags of salt are stored in this area in a covered shed on a concrete pad and also stored inside INEOS' supplies warehouse. During the winter months, INEOS places storage containers of salt near building entrance. These containers have closing lids.
Cover salt piles at all times except when in active use, unless stored indoors.	X		INEOS stores salt in its salt dome located in the South East portion of the property. The dome houses bulk salt which is located on a concrete pad and covered from inclement weather by the dome. Bags of salt are stored in this area in a covered shed on a concrete pad and also stored inside INEOS' supplies warehouse. During the winter months, INEOS places storage containers of salt near building entrance. These containers have closing lids.
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		2026	

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.			
<b>MS4/CSO Only</b> - 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"> <li>• cleanup of salt at the end of each day or conclusion of a storm event;</li> <li>• tarping of trucks for transportation of bulk chloride;</li> <li>• maintaining the pad and equipment;</li> <li>• good practices during loading and unloading;</li> <li>• cleanup of loading and spreading equipment after each snow/ice event;</li> <li>• a written inspection program for storage facility, structures and work area;</li> <li>• removing surplus materials from the site when winter activity finished where applicable;</li> <li>• annual inspection and repairs completed when practical;</li> <li>• evaluate the opportunity to reduce or reuse the wash water. Not possible</li> </ul>	X		INEOS' Snow Removal Plan details house keeping requirements for snow and ice activities.

**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		2023	

before November 30th. Records of the calibration results must be maintained for each piece of spreading equipment.			
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.		2026	
Use equipment to measure the pavement temperature unless such equipment has already been installed on road salt spreading vehicles.		2023	
Develop and implement a protocol to vary the salt application rate based on pavement temperature, existing weather conditions, and forecasted weather conditions.		2024	
Track and record salt quantity used and storm conditions from each call-out.		2023	
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.		2026	
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		The facility's Snow Removal Plan has a training check sheet. This training is conducted by the facilities manager for any snow team members.
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		INEOS currently conducts all its own salting
Complete an annual report, as required by paragraph 3(B) of this order, which is standardized in an electronic format and submitted	x		INEOS will complete its annual report as required.

to the IEPA's website and to the watershed group.			
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		INEOS will implement BMP as it acquires the necessary equipment.
<b>MS4/CSO/IDOT/TOLLWAY Only</b> - 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	n/a
<b>MS4/CSO/IDOT/TOLLWAY Only</b> - 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

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

**BMP:** 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.

**Plan to Implement BMP:** We anticipate having a plan together by 2026.

**Schedule for Implementation:** INEOS plans for this to be implemented by winter 2026

**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.

**Plan to Implement BMP:** INEOS' maintenance department is looking at options to calibrate salt spreading equipment

**Schedule for Implementation:** INEOS plans for this to be implemented by winter 2023

**BMP:** 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.

**Plan to Implement BMP:** We anticipate having a plan together by 2026.

**Schedule for Implementation:** INEOS plans for this to be implemented by winter 2026

**BMP:** Use equipment to measure the pavement temperature unless such equipment has already been installed on road salt spreading vehicles.

**Plan to Implement BMP:** INEOS' maintenance department is looking at options and procedures to take pavement temperatures before salting.

**Schedule for Implementation:** INEOS plans for this to be implemented by winter 2023

**BMP:** Develop and implement a protocol to vary the salt application rate based on pavement temperature, existing weather conditions, and forecasted weather conditions.

**Plan to Implement BMP:** INEOS will develop a plan to vary the salt application rate based on pavement temperature.

**Schedule for Implementation:** INEOS plans for this to be implemented by winter 2024

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

**Plan to Implement BMP:** INEOS' environmental group and maintenance group are working together to update the sites Snow Removal plan. As part of this process INEOS will be creating a salt tracking sheet to be used.

**Schedule for Implementation:** INEOS plans for this to be implemented by winter 2023

**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:** We anticipate having a plan together by 2026.

**Schedule for Implementation:** INEOS plans for this to be implemented by winter 2026

**6.0 Other Chloride TLWQS Required Milestones**

INEOS 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.	INEOS will have a mechanism to track Salt usage onsite by February 2023	
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.	By July 1 of each year, beginning in Year 2 2024.	
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.	By July 1 of year 3 2025, the workgroups will submit a Status Report to the IEPA.	
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.	By July 1 of year 4 ½ 2026, the workgroups will submit a re-evaluation to the IEPA and IPCB.	