

Water Quality Impacts of Transportation and Storage of Road Salt Along the Illinois River



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Salt Production

- BIG 3 Salt Producers



- 2013 IL Salt Contracts

VENDOR NAME	AMOUNT AWARDED (with renewal)
CARGILL SALT DIV	\$82,995,558.00
MORTON SALT, INC	\$22,608,250.00
NORTH AMERICAN SALT COMPANY	\$8,454,410.00
THE DETROIT SALT COMPANY	\$1,250,372.00
	TOTAL: \$115,308,590.00



Salt Institute

MAJOR SALT DEPOSITS AND DRY SALT PRODUCTION SITES IN NORTH AMERICA

LEGEND

- MAJOR SALT DEPOSITS
- EVAPORATED
- ⊠ ROCK
- SOLAR

SOURCE: Salt Institute
 700 North Fairfax Street
 Fairfax Plaza, Suite 600
 Alexandria, VA 22314-2040
 703 / 549-4648
 www.saltinstitute.org

Salt Transportation

- Producers transport salt to IL by barge up the Mississippi River and then the Illinois River
- IL salt supply dependant on IL River

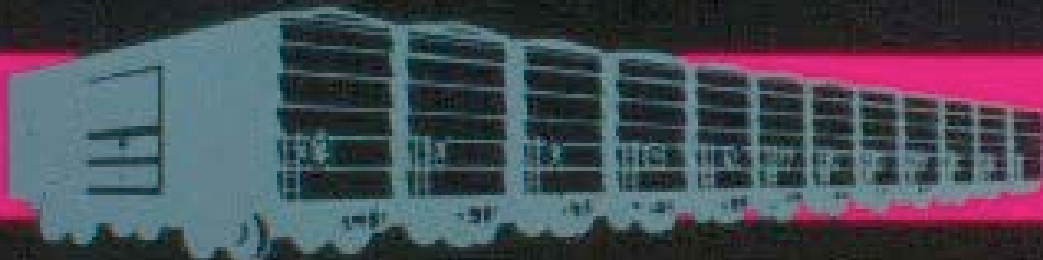


IL River & Watershed

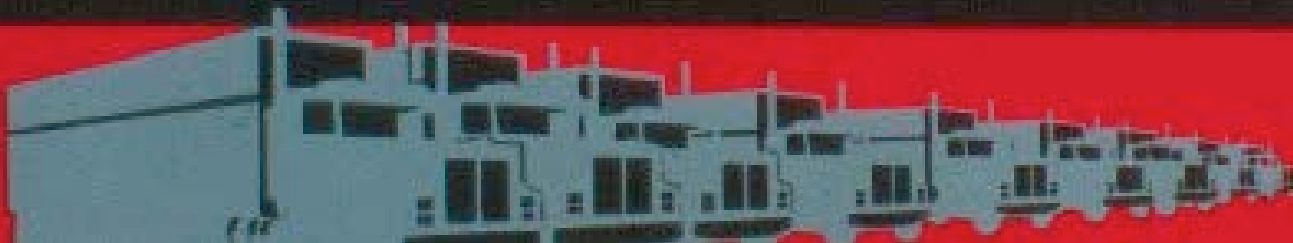
CAPACITY COMPARISON



1 barge



15 rail cars



**60
trucks**

Source: Salt Institute

Unloading Salt Barge



Salt Storage

- Road salt producers contract with 3rd party bulk storage and transportation facilities
- Salt producers retain title to all salt until sold to consumers for road deicing
- Storage facilities build large stockpiles from which trucks load for delivery to consumers
- Salt producers retain responsibility to cover stockpiles

Barge Unloading Dock



Barge Unloading Dock & Conveyor



Conveyor to First Drop Stockpile



Salt Stockpiles



Constituents of Road Salt

- Sodium Chloride (NaCl)
- Sodium Ferrocyanide (Yellow Prussiate of Soda)
 - Anti-caking additive
 - Required by IDOT contract specifications
 - Iron cyanide compound (“Prussian Blue”)
 - Exposure to shallow water and sunlight leads to decomposition that releases free cyanides, which can be extremely toxic to aquatic organisms

Threatened Waters

- Surface waters
 - IL RIVER
 - Tributaries & drainage channels
 - Collection ponds
- Ground waters
 - Sankoty Aquifer
 - Unconfined aquifers
 - High potential for contamination

So What's the Problem??

- It's all about the QUANTITY
- Stockpiles range from 50,000 to 150,000 tons
- Large-Scale Concerns:
 - Eliminating/reducing storm water contaminated
 - Prevent leaching of contaminated storm water to ground waters
 - Prevent discharge of contaminated storm water to surface waters

Conveyor Spillage



Little or No Coverage



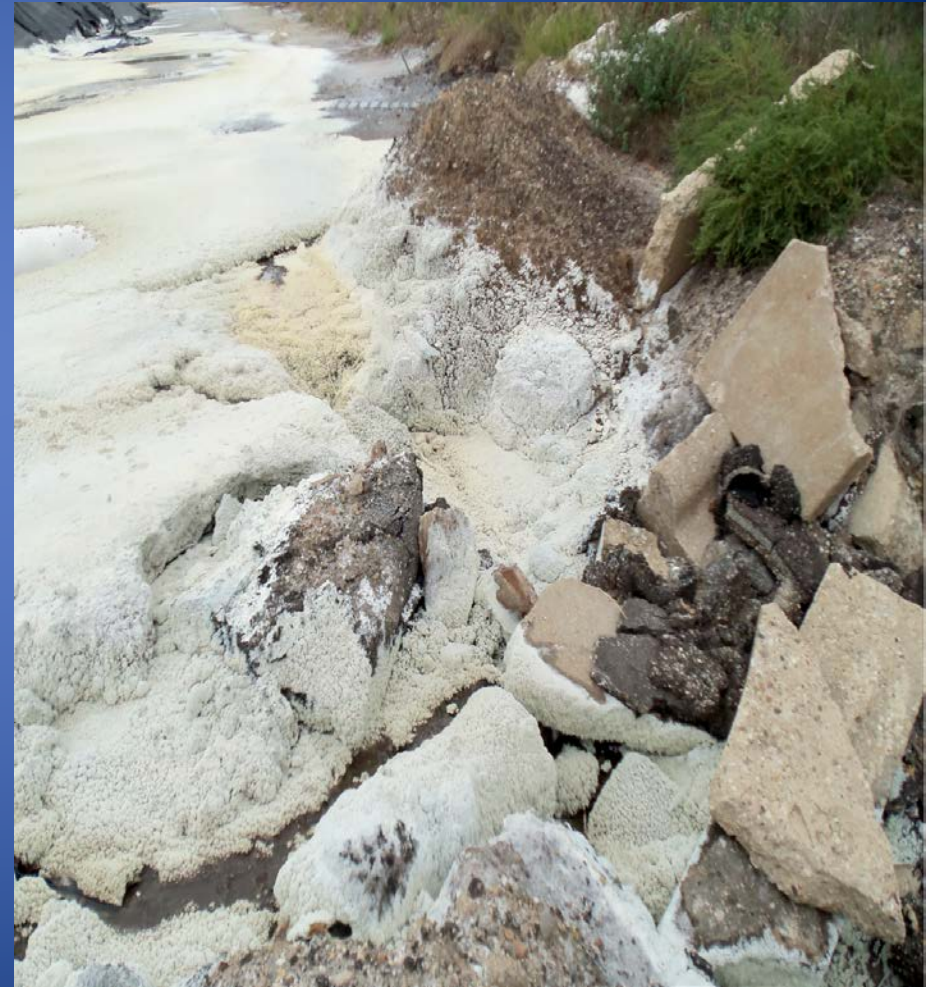
Lack of Perimeter Ballast



Inadequate Storage Pad



Lack of Containment

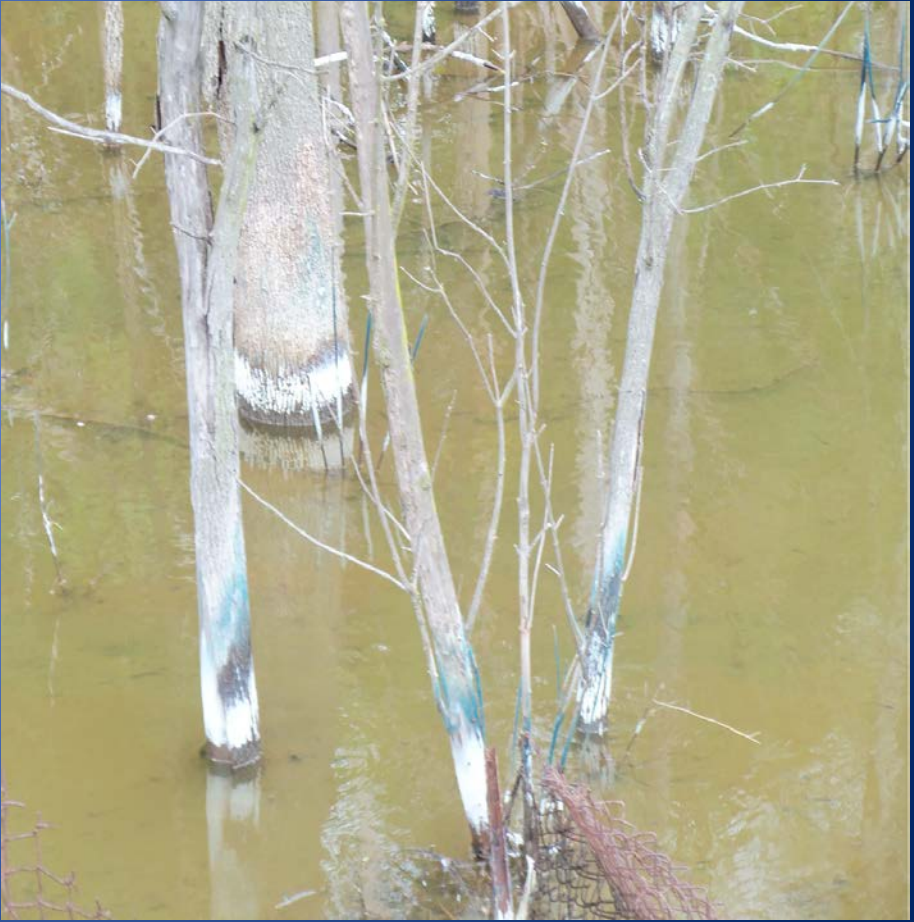


All Lead to Discharges to the Environment

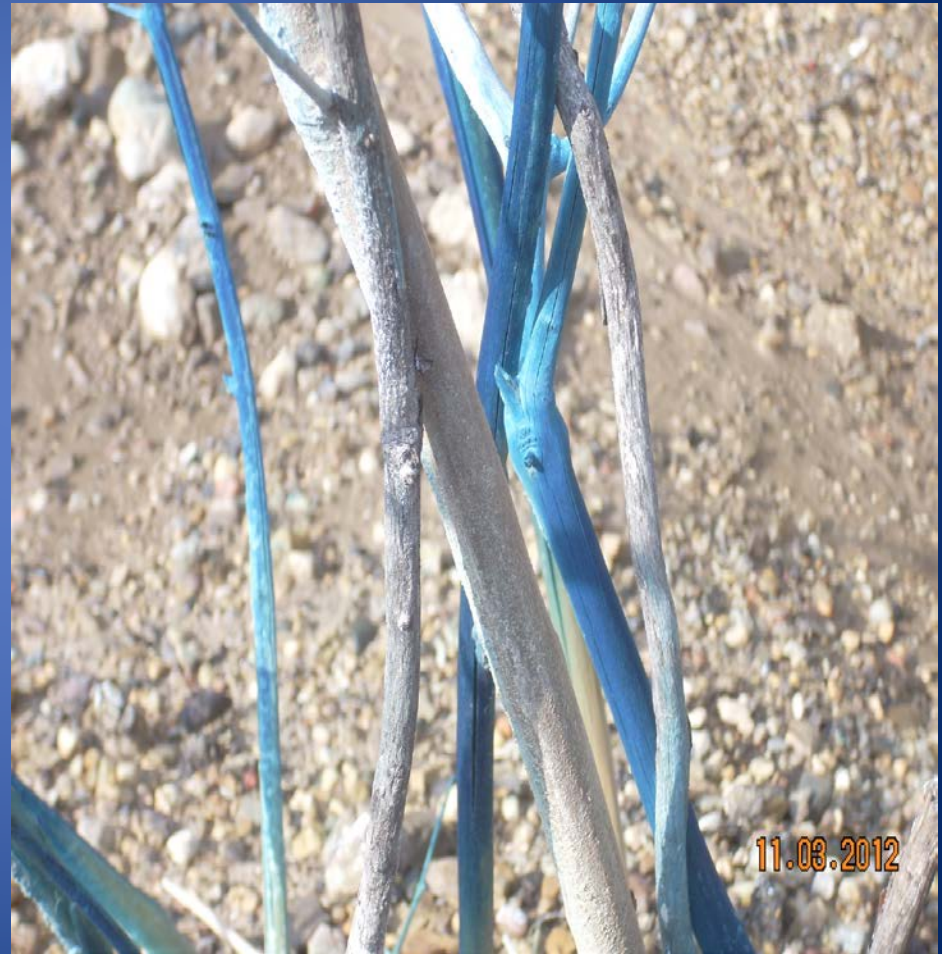


Impacting Receiving Waterways





Prussian Blue Trees



What are our Legal Protections?

Section 12 of the Illinois Environmental Protection Act (415 ILCS 5/12 (2012))

No Person Shall:

- (a) Cause or threaten or allow the discharge of any contaminants into the environment in any State so as to cause or tend to cause water pollution in Illinois . . . or so as to violate regulations or standards adopted by the Pollution Control Board. . . .
- (d) No person shall deposit any contaminants upon the land in such place and manner as to create a water pollution hazard.
- (f) No person shall cause threaten or allow the discharge of any contaminant into the waters of the State . . . without an NPDES permit . . .

Water Quality Standards

- Section 302.208 of the Board's Water Pollution Regulations sets numerical water quality standards for waters of the State:
 - Chloride: 500 mg/l
 - Dissolved Iron: 1.0 mg/l
 - Free Cyanide: 22 ug/l
- Sampling of State waters at enforcement sites have shown:
 - Chloride: ↑ 200,000 mg/l
 - Dissolved Iron: ↑ 2.0 mg/l
 - Free Cyanide: ↑ 8,000 ug/l

How do we enforce our legal protections?

- Permit requirements
 - Storm Water Pollution Prevention Plans (SWPPPs)
- No regulations dictating industry standards
- Left to industry to determine how to achieve compliance with permits & pollution prohibitions
- Salt Institute Guidelines provide operational standards to protect product & environment

Enforcement Initiative (as of today)

- 4 sites & all 3 Big Salt producers have received Violation Notices from IEPA – all along IL River
- 3 sites have been referred to IAGO – all Peoria
- 2 lawsuits have been filed & have interim orders on file requiring sampling & imposing operational requirements
- Additional facilities have been identified
- Inspections will continue along River and throughout State

What We Want

- Streamlined process reducing exposure time
- Improved conveyors & daily housekeeping
- Engineered impermeable storage pads
- Indoor storage or Diligent coverage
- Containment of contaminated storm water
- Collection of contaminated storm water
- Impermeable liner of any collection ponds
- Proper treatment or disposal

Streamlined Stockpiling



Impermeable Storage Area

- The KEY is engineering!



Covered & Sealed Stockpiles



Containment & Collection

- The KEY is engineering! (& synthetic lining)



Balancing Public Interests



- Human safety
- Human health
- Environmental impact

ARTICLE XI OF THE CONSTITUTION OF THE STATE OF ILLINOIS

SECTION 1. PUBLIC POLICY

The public policy of the State and the duty of each person is to provide and maintain a healthful environment for the benefit of this and future generations.

SECTION 2. RIGHTS OF INDIVIDUALS

Each person has the right to a healthful environment.