DEPARTMENT OF TRANSPORTATION

As a result of the 1983 Wisconsin Groundwater Law, the Department of Transportation (DOT) regulates the storage of highway salt (ss. 85.17 and 85.18, Wis. Stats.) to protect the waters of the state from harm due to contamination by dissolved chloride. DOT is also responsible for potable well sampling at 59 rest area and seasonal waysides. Other DOT groundwater related activities or assistance include: contaminated property groundwater investigation or remediation; compensatory wetland restoration; storm water management; and groundwater level monitoring points for the Wisconsin Groundwater-Level Monitoring Network at several locations.

FY 2019 Highlights

- Continue to research the effectiveness of brine chemicals and brine application rates for varying weather conditions (Clear Roads National Research Consortium https://clearroads.org/).
- Created the Brine Technical Advisory Committee (TAC) in 2018.
- Pilot tested Mostly Liquid Routes in four Counties including one Interstate application route for the entire winter.
- Preliminary results of new brine application techniques are showing significant reduction in salt use while maintaining clear roads and level of service for the traveling public.

Details of Ongoing Activities

Salt Storage

Highway salt is stored statewide by suppliers, counties, cities, villages and private companies. Annual inspections occur and reports are provided for salt storage sites to ensure storage practices are in accordance with ch. Trans 277, Wis. Adm. Code (Highway Salt Storage Requirements). The intent of the Code is to help prevent entry of highway salts into waters of the state from storage facilities. All salt must be covered and stored on an impermeable base. The base for stockpiles is required to function as a holding basin and to prevent runoff. The covers must consist of impermeable materials or structures to prevent contact with precipitation. State funded facilities are being added to the DOT salt storage program to provide greater capacity of indoor storage. This will improve groundwater protection and create greater flexibility for scheduling salt purchase at optimal prices.

The DOT annually updates salt storage facility records into a database and assists the DNR Wellhead and Source Water Protection program in locating salt storage facilities for GIS mapping applications. There are currently 1,308 salt storage site locations listed in the database with a total of over 2,642 buildings, brine tanks and stockpiles identified in the state. Facility inventories, inspections, repairs and improvements are included in the database.
Salt Use

The DOT Bureau of Highway Maintenance produces the Annual Winter Maintenance Report describing statewide salt use based on weekly reports from each county. Current policy in the State Highway Maintenance Manual restricts the spreading of deicer salts to a maximum of 400 pounds per lane mile per initial application, and up to 300 pounds per lane mile for subsequent applications. Electronic controls for salt spreader trucks are calibrated to record and verify application rates and coverage effectiveness. Other technology is used on county highway patrol trucks to keep salt on pavement surfaces (e.g., zero-velocity spreaders, ground speed controllers and onboard liquid pre-wetting units). Additional efforts to minimize and conserve salt applications include the use of an in-situ weather monitoring system. Pavement temperature sensors on most trucks and at 64 locations along major highway routes are used to determine application rates and effectiveness. Annual training for snowplowing and salt spreading techniques is provided for county snowplow operators.

Salt Usage Tracking and Initiatives

The DOT is working to ensure the right materials and resources are available and used before, during and after each storm event. The department continues to identify best practices based on national studies, pilot winter projects involving salt and brine use, plowing practices and snow plow route optimization. Last winter, four counties implemented route optimization where trucks are strategically routed based on shop location, salt supply and fuel location. These changes resulted in fuel and time efficiencies. An additional 30 counties will implement route changes next winter based on a uniquely designed map for each of those counties.

The newest DOT initiative in winter maintenance is called “Mostly Liquid Routes” (MLRs). Four counties tested MLRs this past winter using brine or brine mixtures to keep the snow from sticking to the road between plow cycles, and rarely put rock salt on the road. These pilot projects resulted in a reduction of about 50% road salt application while still achieving the “time to bare/wet” goals. Next winter additional MLRs will be tested on more state highway routes.

DOT winter maintenance and response performance measures can be found at these webpage links:

https://wisconsindot.gov/Pages/doing-bus/local-gov/hwy-mnt/winter-maintenance/default.aspx
https://wisconsindot.gov/Pages/about-wisdot/performance/mapss/measures/mobility/winter.aspx

For more information

Visit the following web site (https://wisconsindot.gov/)

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