A CARGILL CASE HISTORY
Oromocto, NB, Canada

ACCUBRINE®
AUTOMATED BRINE MAKER

AUTOMATED BRINE MAKER PROVIDES HIGH VOLUME AND HOT MIX CAPABILITIES IN NEW BRUNSWICK, CANADA

MRDC Operations Corporation (MRDC), a private enterprise responsible for the maintenance and rehabilitation of a 195-km (121-mile) highway connecting the cities of Fredericton and Moncton in New Brunswick, Canada, began manufacturing and using salt brine several years ago for pre-wetting road salt during deicing operations and for anti-icing operations.

In the beginning, MRDC manufactured salt brine using conventional brine systems that were installed at the three major depots located along the highway. Later, MRDC implemented a new program encompassing new equipment installed at one central location and holding tanks installed at each depot. "Our team recognized the importance of salt brine production in relation to its usage and potential," said Mark Kenny, professional engineer and MRDC operations manager. "We further realized that improvements or replacements to the former brine production system were necessary to attain the levels of service and efficiencies desired for providing winter maintenance services."

During earlier years, MRDC made salt brine on the fly during spreading operations, since the facility did not have any holding tank capacity at that time. That amounted to manufacturing about 4,000,000 Litres (1,056,000 gallons) of salt brine each year. "Because of our limited quality control measures for checking salt concentrations at that time, we limited our anti-icing window to pavement temperatures of -5 °C (23°F) and above," said Kenny. "A hydrometer was used by the operators to measure the salt concentration in the brine prior to loading, and making brine on the fly was not deemed effective or efficient in terms of operating cost and levels of service with respect to plowing cycle times."

With the help of other North American agencies, and the sharing of information between colleagues at American Public Works Association (APWA) shows, MRDC acknowledged their need to optimize their liquid operations in terms of production, quality control, transportation and storage to effectively and efficiently deliver winter maintenance services. "We also considered the use of hot mixes to enhance our anti-icing and deicing programs during colder pavement temperatures," Kenny said. "But we realized we needed to be effective and efficient at manufacturing salt brine first, prior to manufacturing or using hot mixes."

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Providing customers with deicing solutions that save lives and enhance commerce.

"The system has optimized our ability to effectively manufacture and store salt brine, and has given us the ability to expand our horizons with hot mixes."

"We have increased our storage capacity to vary between 37,000 and 121,000 Litres (10,000 and 32,000 gallons), and we can batch salt brine directly from a computer desktop after feeding salt into the hopper."

– Mark Kenny, Professional Enginner and MRDC Operations Manager

After researching various brine makers, MRDC purchased and installed an AccuBrine® automated brine maker from Cargill Deicing Technology. Kenny and his team were particularly intrigued by the state-of-the-art system's automated process.

After learning more about the advanced capabilities in training sessions and receiving technical support provided by Cargill Deicing Technology and their distributor, Joe Johnson Equipment, MRDC became more familiar with the system. "The system has optimized our ability to effectively manufacture and store salt brine, and has given us the ability to expand our horizons with hot mixes," Kenny said. "We have increased our storage capacity to vary between 37,000 and 121,000 Litres (10,000 and 32,000 gallons), and we can batch salt brine directly from a computer desktop after feeding salt into the hopper."

As a result of the new brine making system, MRDC has increased their anti-icing window from -5°C to -10°C (23°F to 12°F), and has raised their confidence levels with respect to quality control measures. They also have sufficient salt brine on hand at each depot at the desired concentrations ready for the next storm. "The system has enabled us to be more effective and efficient when delivering winter maintenance services," Kenny said. "We have advanced in our operations and our team is very happy with the results. We find it particularly simple to batch salt brine at any time, and we are no longer pressured to make salt brine on the fly. We are confident that sufficient supply is always onsite, ready to be used for any operation."

Overall, the key for MRDC and their new brine making system was automation, technical support, and the sharing of information between staff and various North American snow and ice control agencies. "The whole system just makes sense for us," Kenny said. "MRDC can now move forward in the hot mix direction."

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