Salt Brine Tank Sludge

MnDOT Office of Environmental Stewardship
Environmental Investigation Unit

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MnDOT has prepared this guidance document to provide its internal procedures and requirements for work performed on MnDOT rights of way, including MnDOT-owned facilities. This document should not be construed as a full description of all regulations pertaining to the subject matter. Contact the Environmental Investigation Unit in the MnDOT Office of Environmental Services for additional information or legal requirements.

Management of Salt Brine Tank Sludge

MnDOT operations require management of the salt brine sludge generated in brine mixers and storage containers. Generally this sludge is produced when brine production and storage tanks are cleaned out at the end of the deicing season. The following management practice allows for proper disposal of salt brine tank sludge. The options listed below are possible methods for sludge removal and disposal. Contact the Environmental Investigation Unit for assistance in unusual situations regarding removal or disposal of brine sludge.

Sludge that accumulates in salt brine mixing tanks or storage tanks is likely the result of iron hydroxide or manganese hydroxide that precipitates in the brine solution. Iron and manganese may be introduced in the salt brine from well water used to make the brine solution. Iron hydroxide precipitates generally produce an off-white gelatinous slime that settle in the tank over time and form a semi-solid like material. However, depending on the amount of iron and manganese in the water, the color of the sludge may vary. Impurities, like coal dust present in train cars used to transport the salt, may also be introduced in the salt during shipping and produce a grey sludge in the brine solution.

Option #1:
With a sludge pump, remove what is left in the salt brine tanks into loader bucket or equivalent. Contain the sludge within the salt shed, allowing the liquid to evaporate. Once all liquid has evaporated, blend the salt into the salt pile. Absolutely no liquids can be allowed to escape from the salt shed, drain into a storm sewer or impact surface water, septic field, or the ground.

Option #2:
District should contact the local wastewater treatment plant to see if they will accept the sludge in their treatment process. If the treatment plant gives written approval to accept the sludge, then it can be drained into the sanitary sewer. If the tank location is not connected to a sanitary sewer, contact the treatment plant for delivery options. Under no circumstances should the sludge be disposed of in the storm sewer, in a septic field, or allowed to discharge directly on the ground.