



MERRIMACK VILLAGE DISTRICT

PROPERTY OWNER NAME
MAILING ADDRESS
MERRIMACK, NH 03054

RE: LOCATION IN WELLHEAD PROTECTION AREA RADIUS

Road Salt and Water Quality

To Property Owner

Due to the number of snow and freezing rain events in Merrimack, winter snow and ice management is required to be performed by the State, Town and the Private sector. Deicing materials are often used in order to keep the public safe during the winter months. The most commonly used deicing agent is sodium chloride, more commonly known as road salt. When road salt is applied to surfaces it dissolves into sodium and chloride ions, which travels with the melting snow and ice into our environment.

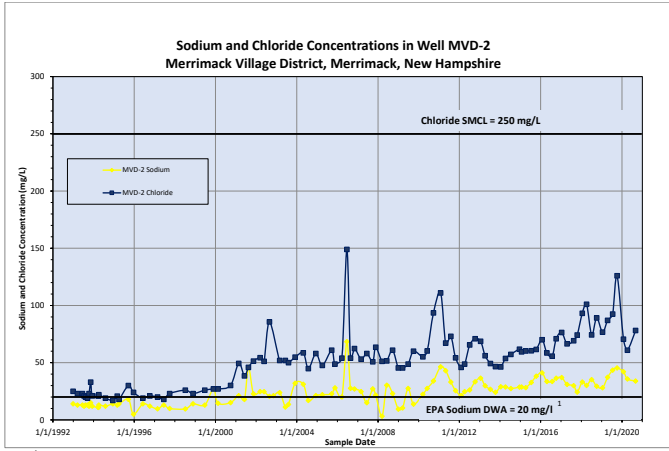
Chloride can be toxic to aquatic life. There is no natural process by which chlorides are broken down, metabolized or taken up by vegetation. In 2008, New Hampshire listed 19 water bodies impaired by chloride; by 2016 that number had increased to 46. Trends show that chloride levels continue to rise with increasing use of road salt. Elevated chloride can affect the taste of drinking water, and increase corrosivity of drinking water.

Sodium can alter the soil chemistry by replacing and releasing nutrients such as calcium, magnesium and potassium into the groundwater and surface water. This can lead to increased nutrient concentrations and affect the ability of the water to buffer acidic compounds impacting the aquatic environment.

Contamination of sodium in drinking water is a concern for individuals restricted to low-sodium diets due to hypertension (high blood pressure). The USEPA has set an advisory limit for drinking water for public water systems at 20mg Na/L to assist doctors in making recommendations for those patients on a salt restricted diet. Additives to road salt like ferrocyanide, which is used as an anti-caking compound in large salt supplies, can have impacts on both the environment and human health due to cyanide ions being released by certain types of bacteria as well as from exposure to sunlight. The USEPA in 2003 added this compound to its list of toxic pollutants under section 307(a) of the Clean Water Act.

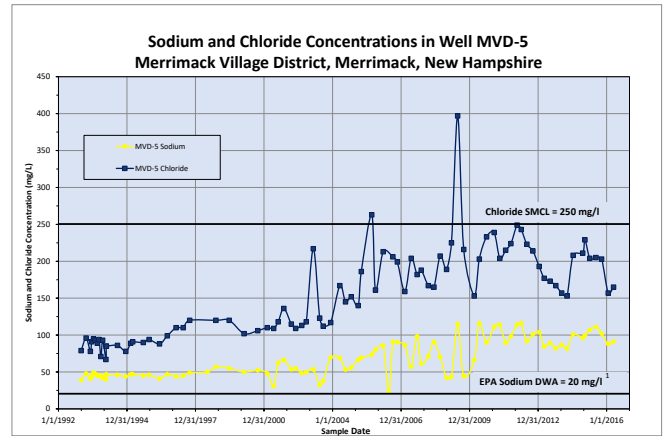
The Merrimack Village District (MVD) is embarking upon a significant investment in water treatment infrastructure totaling over \$20 million, to reduce PFOA and other PFAS compounds in all of MVD's active wells. The additional cost to treat and remove sodium and chloride from our drinking water, if required, is cost prohibitive. Therefore, it is imperative that we, as an entire Town, protect our drinking water, and protect this investment for our future. We need to stop these rising trends in sodium and chloride.

In 2012, MVD implemented a road salt reduction effort, yet sodium and chloride concentrations have continued to rise. Please refer to the charts from Emery & Garrett Groundwater Inc. shown) below of sodium and chloride concentrations over time, for our active supply wells. MVD is taking this proactive approach now, to avoid the need for MVD to implement its own mandatory road salt restriction by-laws, or mandatory road salt bans that would restrict road salt applications for all properties within MVD's well head protection areas.



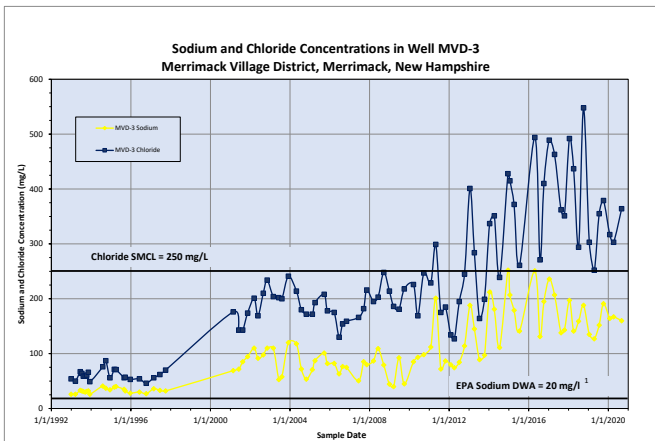
¹ Sodium imparts a salty taste to water and is restricted in some diets for several medical conditions. The EPA Drinking Water Advisory (DWA) recommends a sodium level of 20 mg/L in groundwater for people on a 500 mg/day sodium restricted diet. According to the EPA, a Drinking Water Advisory is "a non-regulatory concentration of a contaminant in water that is likely to be without adverse effects on both health and aesthetics." The EPA recommends keeping sodium concentrations below 30-60 mg/L for taste and aesthetic reasons and the NHDES has a 100-250 mg/L SMCL for sodium.

Emery & Garrett Groundwater Investigations, A Division of GZA



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MVD is committed to protecting our natural resources and the environment within the Wellhead Protection Area (WHPA). We have investigated the effects of de-icing agents, specifically Sodium Chloride, on our Aquifers as reported by Emery & Garrett Groundwater Inc. in May of 2012. After their final report was issued, we contacted businesses within the WHPA that have salt restrictions on their site plans to remind them of that. We monitor those locations for the use of sodium and chloride, yet still, sodium and chloride levels are rising. **We need your help!!** For more information please visit us at www.mvdwater.org and view the Emery & Garrett Groundwater Inc's report, links to NHDES Fact Sheets and other useful information. Thank you in advance for your consideration and support of this important matter.

Sincerely,

Ronald Miner Jr.
Superintendent