

# 2021 CHLORIDE REDUCTION PLAN PROGRESS REPORT

**Paddock Lake Sanitary Sewer Utility District**  
WPDES Permit No. WI-0025062-10-0  
6969-236<sup>TH</sup> Avenue  
Paddock Lake/ Salem, WI 53168  
262-843-3617  
Tim Popanda and Gary Meyers

**Paddock Lake Sanitary Sewer District**  
**Chloride Pollutant Source Reduction Measures**  
**2021 Annual Report**

**General Information:**

Name of Permit Holder: Village of Paddock Lake

Permit Number: WI-0025062-10-0

Plant Location: 23201-62<sup>nd</sup> Street Paddock Lake/Salem, Kenosha County, Wisconsin

**Executive Summary:**

The Village of Paddock Lake's adopted Chloride Reduction Management Plan continues to be hampered by the Covid-19 pandemic, Village residents are reluctant to participate in the water softener optimization efforts primarily due to Covid concerns. Village staff continues to implement and conduct commercial property water softener optimizations when applicable.

In addition to softener optimizations, Village staff continues source reduction public education and improvements to Village Road de-icing strategies.

2021-2022 saw multiple program developments that will in the future lead to source reductions, these program developments include:

- Adoption of Chloride Source Reduction Ordinance, this ordinance requires on demand water treatment devices.
- New commercial developments are required to develop and implement their own site chloride reduction plan. This has led to two new retail developments to install pavement and pedestrian sidewalk heating systems to melt snow and ice.
- Village forestry department removing right-of-way trees and tree canopies shading road pavement.

**Operations Summary:**

The Paddock Lake Sewer Utility District provides treatment for wastewater collected from 1,476 users of the sanitary sewer system. The district serves 1,333 dwelling units, 52 apartments, 87 commercial businesses and 4 public users, of these users, 325 are currently served by sanitary sewer and municipal water, the remaining 1,151 users are served by their own private water wells.

This scenario presents a challenge for the utilities control of chlorides entering the districts collection system. The challenge can better be described by quantifying the average hardness

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Village of Paddock Lake

2021-2022 Chloride Pollutant Source Reduction Project Report

of water drawn from these private wells throughout the eight (8) collection areas of the Village. The Village has control over the quality of water used by the 325 users of the municipal water supply but lacks direct control over the quality of water used by the remaining 1,151 users served by their own private water supplies. To that end of reducing chloride pollutants, the Village Board of Trustees and Village staff have developed a multiple phase approach to reducing chloride pollutant sources from entering the sanitary sewer collection system.

Increasingly stringent effluent limits for chloride are expected to continue and be lowered for the Utility District in future issued Wisconsin Pollutant Discharge Elimination Systems (WPDES) Permits. The Utility District operates under a US EPA and WDNR chloride variance, this variance requires that the district effluent chloride limits be below 510 mg/L, expressed as a weekly average.

The WPDES permit contains a variance to the water quality-based effluent limit (WQBEL) for chloride granted in accordance with s. NR 106.83 (2), Wis. Adm. Code. As conditions of this variance the Utility District shall (1) maintain effluent quality at or below the effluent limits specified in the WPDES permit, (2) implement the chloride reduction measures specified in the WPDES permit and Chloride Variance, (3) follow the approved Source Reduction Plan and (4) perform the actions listed in the schedule of actions.

**Annual Chloride Mass Discharge**

	2019	2020	2021
Annual Total LBS	527,173	457,203	534,843
Annual Average LBS/Day	1,444.3	1,252.6	1,465.3
Annual Average Weekly Concentration mg/L	344 mg/L	332mg/L	355mg/L
Annual Average Daily Effluent Flow in MGD	0.5122	0.4585	0.5268

## Summary of Progress of Chloride Source Reduction Project Measures 2021-2022

Tasks within Reduction Plan	Description	Audience	Measurable Goals	2021-2022 Status
Public EDU of chloride from water softener use.	Educate the users of the system on the negative results of overuse of chloride and water softeners	Residents, Business Owners	Develop education materials, newsletters, and mailers.	Residents were communicated with by US mail while business owners met with utility staff. Assisted <b>21</b> residents in optimizing existing softeners.
Public EDU, proper use of road salt	Communicate and report to public at monthly board meetings and annual Lake District meetings.	Residents, property owners	Provide monthly reports to Village Boards, develop power point for Lake Protection District annual meeting	Annual report, monthly reports reached 132 property owners and public. Presented power point and report to Lake District.
Public EDU	Newsletter describing impact of salt use on environment	Residents	Create and develop an FAQ and newsletter articles.	Spring newsletter distributed, fall newsletter will be mailed in early October of 2022, addressing softeners.
EDU of parking lot maintenance companies	Educate care takers of business and school parking lots of the need and ability to reduce the use of road salt.	School and Business owners	Through education, convince and train those maintaining private parking lots to reduce road salt use by 20%	Met with school to assist with snow and ice plan as well as assist with design of new salt storage shed.  Meet with various business owners in 2022-2023
Adoption of DIR use ordinance	Adoption of local Ordinance requiring all new softeners to be Demand Initiated Regeneration type softeners.	All Residents, plumbers, and sewer users.	Create Village Ord. regulating	Completed and adopted in 2022
Adoption of ordinance limiting softening of irrigation water	Adoption of Ordinance restricting the softening of exterior process and irrigation water.	All residents, Plumbers, and sewer users	Create Village Ord. regulating	Completed and adopted in 2022.

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2021-2022 Chloride Pollutant Source Reduction Project Report

Tasks within Plan	Description	Audience	Measurable Goals	2021-2022 Status
Reduce inflow of groundwater to collection system	Sampling of collection system during winter and early spring to determine inflow of road salt. Perform collection system repairs based on data collected.	DPW and District staff	Goal of reducing road salt use and inflow of chloride laden groundwater.	Identified utility access holes with inflow, repaired multiple utility access hole rims.  Continue investigation and repairs in 2022. 2023 will see 16 utility access hole rims and covers rebuilt and replaced with booted chimney rings.
Expand data collection to include sampling of runoff from parking lots	Gather data that can be used to educate private parking lot maintenance professionals.	Business owners	Goal of reducing road salt use and runoff from private parking lots.	Observed winter salting operations and collected samples from catch basins.  Use collected data and observations to educate in 2022-2023
Calibrate municipal road salting equipment	At the start of each snow and ice season inspect, calibrate, and educate public works staff on efficient use of road salt.	Public works staff	Continue the reduction of municipal road salt use.	Nov. of 2020 and Dec. 2021, salting equipment was calibrated to reduce salt use.  <b>Reduced road salt use by 22% over the 2019-2020 winter season, and an additional 17% over 2021-2020 season.</b>
Snow storage	Place future snow storage piles in area that don't drain to collection system and/or waters of the State.	Public works staff and school staff	Prevent the transfer of road salt to waters of the state by storing snow piles laden with road salt from melting and runoff to collection system	Snow storage area was moved in 2021 to public works yards away from collection system.
Require all new commercial developments to develop and implement their own chloride reduction plan		Commercial Developers	Using Developer Agreements, Village requires commercial developers to take action to reduce road salt use and install ordinance required softeners.	2021-2022 saw two new developments installing pavement heating systems and new recirculating water softeners.

Tasks within Reduction Plan	Description	Audience	Measurable Goals	2021-2022 Status
Optimize <b>residential</b> water softeners within collections zones 2 and 8	<b>Residential</b> properties within collection zone 2 and 8 (283 homes) served by private water wells known to have extremely hard water. Based on sampling data, these two zones contribute as much as 22% or 79,000 pounds of chloride to the system annually.	Residential sewer users in zones 2 and 8	Work with residents using water softeners to optimize and or tune-up existing softeners. Provide incentives to replace old inefficient softeners.	Due to Covid-19, these 283 property owners were notified by US mail, requesting their assistance with softener optimization.  Return to implementing our optimization project in 2022. Assisted 21 residents in optimizing their existing softeners.
Optimize <b>Commercial</b> water softeners	Commercial properties within the village and served by softeners are to have their softeners inspected and optimized.	Commercial properties and plumbers.	Educate business owners on the benefits of operating an efficient water softener system.	District staff met with 32 business owners and their plumbers' connecting properties to municipal water system. 26 of the 33 optimized their softeners and 2 removed softeners after experiencing lower hardness of municipal water.  Meet with 28 properties connecting to municipal water in 2022-2023.
Optimize <b>Public</b> water softeners	Public/School optimization of softener after connection to municipal water system	High school	Demonstrate to school officials that the existing softener can be adjusted to perform with better water from Village	School did optimize softener to account for reduction in hardness and reduced Iron in municipal water supply.
Membership and association	Participate with Wis. Salt-Wise, and WWOA to gain knowledge and materials	Village and Utility staff	Joined Wis Salt Wise program to share information and data.	Recognized by Wis Salt-Wise as a municipal champion in the reduction of chloride use. Continue to participate in 2022-2023

## **Summary and Conclusion**

The Village Utility continues to strive to meet and comply with chloride water quality standards contained within the Utilities WPDES Permit and the WDNR chloride variance through pollution prevention and source reduction initiatives. In 2021-2022, the district implemented what it could, considering the Covid-19 pandemic restrictions for in person contacts.

The adopted chloride reduction plan and strategy, developed in 2019-2020, utilizes incentives, partnerships, and public education to encourage reduction of chloride entering the districts sanitary sewer collection system and the water of the State of Wisconsin.

As the Districts pollution prevention program develops, and more individuals and organizations interact with District staff, these networking opportunities allow for more meaningful discussion about BMP's and reduction of pollutants. Individual chloride reduction actions, such as softener improvements and road salt reduction, are promoted frequently during contacts made by Village and District staff. These contacts are often made during building, plumbing inspections and annual licensing safety inspections, owners are educated on BMP'S and existing softeners are examined by Village staff.

The district chloride reduction program has been successful thus far, with greater accomplishments and chloride reductions to come. The Village and District will continue to meet and or exceed the chloride reduction goals and targets contained within the approved reduction plan.

### **2021-2022 Chloride Reduction Accomplishments**

1. Connected 33 existing commercial properties to the municipal water system, district staff was successful in convincing 33 new water users to optimize or disconnect existing water softeners.
2. Through trial and error along with calibration of municipal salting equipment, the Village was able to reduce road salt use by 24%. The Village used a long developing study of village roads facing south and the solar gain these roads receive from sun exposure, using this data the village was able to reduce road salt use.
3. Convinced the facility director of the regional high school to work with the Village to reduce de-icing agents on the schools parking lots and sidewalks and convinced the school district to construct a new weather resistant road salt storage building.
4. Relocated snow storage areas away from collection system.
5. Partnered with Wisconsin Salt-Wise for reduction ideas, training, and support.
6. Village staff continues to serve as an advisor on the Southeast Wisconsin Planning Commission Chloride Reduction Advisory Committee.
7. Began purchase of brine de-icing equipment for plow trucks.
8. Assisted 21 residents with optimization of existing water softeners.

## **2022-2023 Chloride Reduction Projects**

1. Return to residential water softener optimization project plan. (Post Covid-19).
2. Continue to impress upon existing business owners connecting to the municipal water that existing water softeners require tune-ups.
3. Continue to gather collection system samples to pinpoint chloride sources.
4. In cooperation with Salt-Wise, organize a symposium in our area to educate private and public parking lot maintenance contractors.
5. Fit municipal salting trucks with pre-wetting equipment.
6. Continue refining public education materials and processes.
7. Continue to remove trees and tree canopies that shade road surfaces.

## **Additional ideas and ways to reduce chloride loading.**

1. Re-evaluate current road salting operations. Expand on using solar exposure as an aid in road salt performance.
2. If applicable, keep municipal pavement free of potholes and cracks which both minimize the ponding of surface water and/or infiltration into ground water ultimately allowing chloride to end up in ground water and collection system.
3. When issuing residential driveway permits, require driveways to shed surface water to stormwater ditch line vs shedding water to road surfaces.
4. Share information with Kenosha County Highway Dept. and commercial landowners in the watershed to help track where salt is being applied, what quantity, and how often or the level of service based on the winter management plan. Track what BMPs are being applied to help determine effectiveness.
5. Equip municipal road salting trucks with pre-wetting tanks and spray equipment to reduce the loss of road salt caused by bounce and scatter.
6. Require new developments to prepare and present to Village a Chloride BMP. This plan will then be incorporated into recordable development agreements.
7. Limit the amount of impervious surfaces in new developments.

## **Certification**

I certify that the information contained in this document and all attachments were gathered and prepared under my supervision and based on inquiry of people directly under my supervision and that, to the best of my knowledge, the information is true, accurate and complete.

Respectfully submitted by:

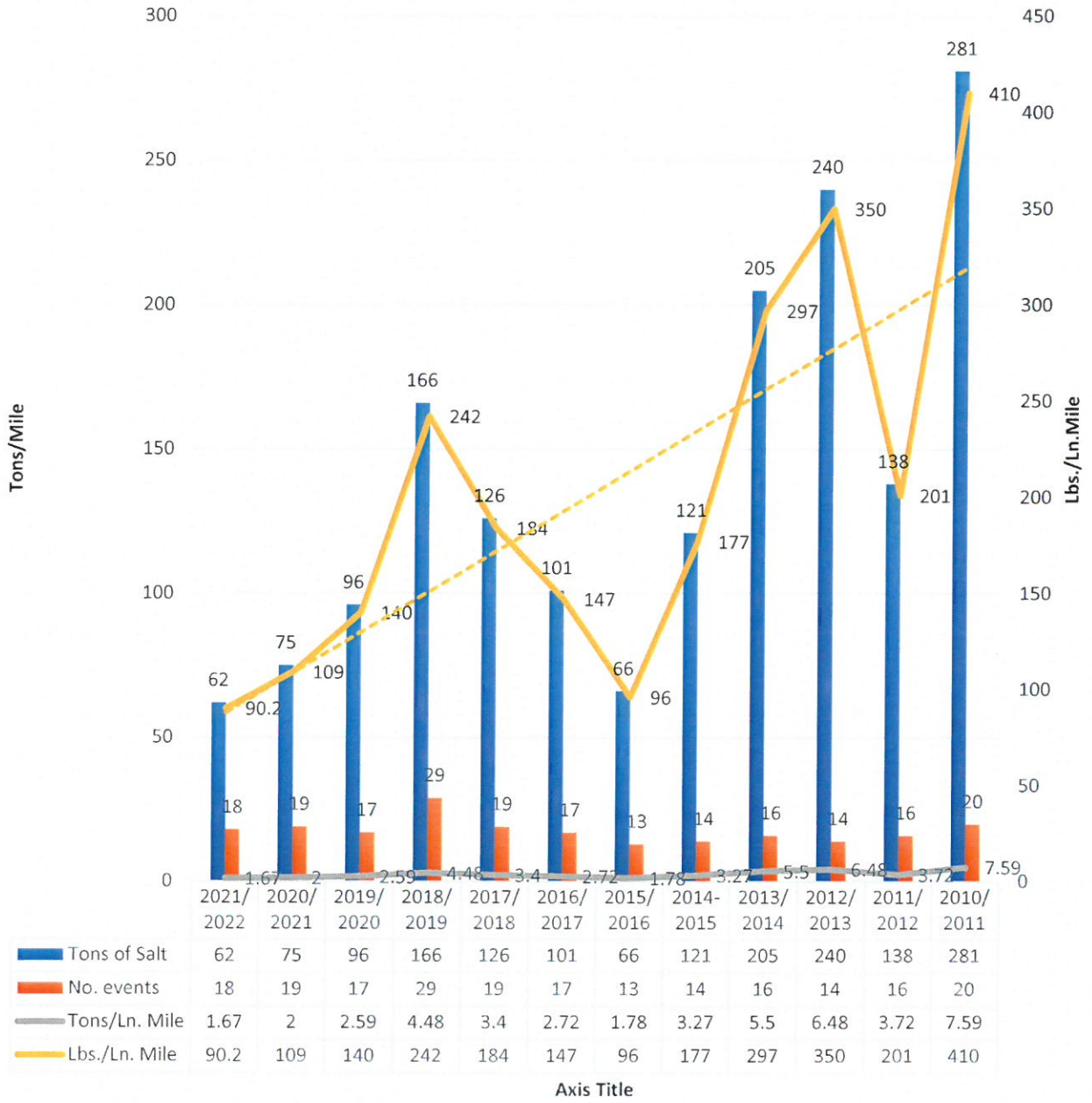
Timothy A. Popanda  
Village Administrator



## ATTACHMENTS

- Road salt history table.
- 2021 Annual Chloride Report.
- Collection System Sampling Data by collection zone.
- Newly adopted Chloride Source Reduction Ordinance.
- Spring newsletter.
- Letter sent to residents in collection zone 8 and 2.
- Winter weather incident report submitted to Board of Trustees.

# Road Salt History



■ Tons of Salt   
 ■ No. events   
 — Tons/Ln. Mile   
 — Lbs./Ln. Mile   
 - - - Linear (Lbs./Ln. Mile)

**VILLAGE OF PADDOCK LAKE, WISCONSIN  
ANNUAL CHLORIDE REPORT 2021**

Annual Chloride Mass Discharge Computations

Month	Sample Date	Chloride Conc (mg/l)	Effluent Flow (MGD)	Daily Chloride Mass (lbs/day)	Average Chloride Mass (lbs/day)	Days in Month	Monthly Chloride Mass (lbs/month)
Jan-21	1/22	350	0.5673	1655.9			
	1/23	380	0.7089	2246.6			
	1/24	360	0.4884	1466.4			
	1/25	380	0.4014	1272.1	1660.3	31	51468.4
Feb-21	2/25	430	0.595	2133.8			
	2/26	430	0.5755	2063.9			
	2/27	450	0.5117	1920.4			
	2/28	450	0.5051	1895.6	2003.4	28	56095.9
Mar-21	3/12	490	0.3875	1583.6			
	3/13	480	0.3603	1442.4			
	3/14	490	0.3488	1425.4			
	3/15	480	0.3424	1370.7	1455.5	31	45120.6
Apr-21	4/23	380	0.6384	2023.2			
	4/24	370	0.5595	1726.5			
	4/25	410	0.5108	1746.6			
	4/26	450	0.4723	1772.5	1817.2	30	54516.7
May-21	5/20	350	0.6419	1873.7			
	5/21	260	0.9803	2125.7			
	5/22	230	1.341	2572.3			
	5/23	250	0.8807	1836.3	2102.0	31	65161.6
Jun-21	6/10	380	0.4641	1470.8			
	6/11	350	0.4464	1303.0			
	6/12	390	0.4523	1471.2			
	6/13	400	0.5026	1676.7	1480.4	30	44412.7
Jul-21	7/9	430	0.3458	1240.1			
	7/10	430	0.3127	1121.4			
	7/11	440	0.2979	1093.2			
	7/12	430	0.2794	1002.0	1114.2	31	34539.2
Aug-21	8/13	380	0.2896	917.8			
	8/14	390	0.2443	794.6			
	8/15	400	0.2367	789.6			
	8/16	400	0.2403	801.6	825.9	31	25603.5
Sep-21	9/3	270	1.1022	2481.9			
	9/4	210	0.9424	1650.5			
	9/5	180	0.5642	847.0			
	9/6	210	0.5653	990.1	1492.4	30	44771.2
Oct-18	10/19	290	0.3929	950.3			
	10/16	280	0.349	815.0			
	10/21	300	0.3383	846.4			
	10/22	320	0.3418	912.2	881.0	31	27310.0
Nov-18	11/5	310	0.7266	1878.6			
	11/6	280	0.9450	2206.8			
	11/7	190	0.7138	1131.1			
	11/8	220	0.5669	1040.1	1564.1	30	48488.3
Dec-21	12/9	320	0.4898	1307.2			
	12/10	320	0.4562	1217.5			
	12/11	350	0.4569	1333.7			
	12/12	330	0.4078	1122.3	1245.2	31	37355.4
<b>Annual Total LBS</b>							<b>534843.6</b>
<b>Annual Average LBS/Day</b>							<b>1465.3</b>



the premises against all damages, costs, expenses, outlays and claims of every nature and kind arising out of unskillfulness or negligence on his part in connection with plumbing or excavating for plumbing as prescribed in this Chapter. Such bond shall remain in force and must be executed for a period of one year except that on such expiration it shall remain in force as to all penalties, claims and demands that may have accrued thereunder prior to such expiration.

#### 8.05 WATER PIPES AND WATER PUMPS.

(a) Pipe Materials. All water pipes laid underground shall be of type K copper tubing, iron water main pipe, or other approved materials, provided that in any event, the requirements of this section shall at least meet the minimum requirements set forth in Chapter SPS 381 - 387 of the Wis. Admin. Code.

(b) Pump Installations. All water pumps shall be installed in compliance with the Wisconsin Well Construction and Pump Installation Code, Chapter NR112 of Wisconsin Administrative Code, which Chapter is hereby made part of this Code by reference.

#### \* 8.06 CHLORIDE SOURCE REDUCTION PROGRAM. \*

(a) Authority. The Village is authorized to develop and enforce specific standards requirements to regulate the discharge of chloride from residential, commercial and industrial sources pursuant to Section NR 106.92, Wis. Admin. Code.

(b) Purpose and Findings.

(1) Purpose. The purpose of this ordinance is to protect the health, safety and welfare for the Paddock Lake Sewer Utility District ("District") and the State of Wisconsin waterways through the regulation of the discharge of sodium, potassium and chloride products into the District's sanitary sewer system, to impose regulations regarding compliance with rules and terms of Chapter 283, Wis. Stats. and Wisconsin Department of Natural Resources Administrative Codes and Wisconsin Pollutant Discharge Elimination System Permit.

(2) Findings. The District's sanitary sewer treatment plant discharge permit issued by the Wisconsin Department of Natural Resources requires the District to implement a pollution preventative

work plan to reduce chloride from entering the District's wastewater treatment systems. The results of a chloride reduction study indicate that up to sixty-two (62%) percent of chloride entering the District's sanitary sewer system is from ion-exchange water softener systems. To reduce chloride from entering the District's sanitary sewer collection system, the District is regulating the use of self-regenerating water softeners and sodium, potassium and chloride-based products by residential, commercial and industrial sanitary sewer users through this ordinance.

(c) Source Reduction.

(1) Water softeners. All residential, commercial and industrial sanitary sewer users installing new or replacement ion-exchange water softeners used primarily for water hardness reduction that, during regeneration, discharge a brine solution shall install a demand-initiated regeneration type softener equipped with a water meter or a sensor, and having a hardness exchange rating of at least four thousand (4,000) grains of hardness exchange per pound of salt. At the time of installation, all new or replacement softeners shall be optimized for salt usage in accordance with subsection 8.06(b)(2) which shall include adjustment of settings to achieve the minimum hardness exchange rating of four thousand (4,000) grains of hardness exchange per pound of salt.

(2) Softener salt optimization. All ion-exchange water softeners used primarily for water hardness reduction that during regeneration discharge a brine solution shall be optimized for salt usage in accordance with performance standards approved and published by the Village Board. Once optimized, each softener shall be maintained at optimized settings. The Village control authority may order additional optimization adjustments to meet chloride source reduction program requirements.

(3) Significant sources. All significant chloride sources such as commercial, industrial and other high-volume water users as designated by the Village Board shall evaluate their water treatment systems with regard to softened water requirements and where feasible, upgrade current

water softeners by adding a brine reclamation system. This requirement shall also apply to new significant sources.

(d) Regulations.

(1) No person shall install or in any manner assist in the installation of a residential or non-residential self-regenerating water softening device that discharges sodium, chloride or potassium into the District's sanitary sewer collection system.

(2) New water softening treatment devices installed for all sanitary sewer system users or structures shall be of a type and style as selected by the user at their expense, provided however that any such appliance or devices must comply with the terms and conditions of this ordinance. Use of non-brine discharge water softening devices such as membrane or carbon systems are not prohibited or regulated by the District or this ordinance.

(e) Water Softener Plumbing Permits.

(1) A water treatment device installer shall obtain a plumbing permit from the Village Plumbing Inspector to install new water treatment devices.

(2) Water treatment device: inspection required. The installation of any water treatment device shall require an inspection. Such inspection is required to ensure that the installation and water treatment device complies with Wisconsin plumbing codes and subsection 8.06(b)(2).

(f) Enforcement. The District's Sanitary Sewer System Operator and the Village Plumbing Inspector shall administer, implement and enforce the provisions of this ordinance. Any powers granted to or duties imposed upon the District's Sanitary Sewer System Operator and the Plumbing Inspector may be delegated to persons acting in the beneficial interest of the District.

(g) Penalties.

(1) Violation penalties. Any person who shall violate a provision of this ordinance shall, upon conviction, be subject to a forfeiture of not more than Fifty (\$50.00) Dollars and in addition shall

pay the costs and expenses of prosecution. Each day such violation continues shall be considered a separate offense.





6969 236th Ave—Salem, WI 53168  
Office 262-843-2713 Municipal Court 262-843-9314  
Village President: Terry Burns  
Trustees: Bena Ahlberg, Barbara Brenner, Kathy Christenson,  
Scott Garland, Robert Spencer, and Gloria Walter  
Municipal Judge: Robert Brenner

Office Staff: Tim Popanda—Administrator/Building Inspector  
Michelle Shramek—Clerk/Treasurer, Marla McIntyre—Deputy Clerk/Treasurer  
Veronica Woodall—Office Assistant/Court Clerk, Diane Lichthardt—Court Assistant  
Website: paddocklake.net

**SPRING LEAF COLLECTION**

Spring leaf collection runs from  
April 19- May 14, 2021

Please remember that only leaves will be picked up. Do not rake rocks, sticks, brush, dog droppings or other objects into the leaf piles. They are very dangerous to workers and will clog and damage the equipment. Leaves must be raked as close to the road as possible. Do not rake leaves near mailboxes, the vacuum hose cannot reach around the posts. If you bag your leaves, the bags will not be returned.



# Earth Day VILLAGE WIDE CLEAN UP

On Thursday, April 22nd the Village will be promoting a village wide litter and pollution cleaning day. The village will provide trash bags and gloves. If you are interested in participating, you can contact the village hall for more information or to sign up: 262-843-2713

- Zone 1 = Monday**
- Zone 2 = Wednesday**
- Zone 3 = Thursday**
- Zone 4 = Friday**

To ensure pickup please place leaves roadside by 7:00 am on your scheduled day.

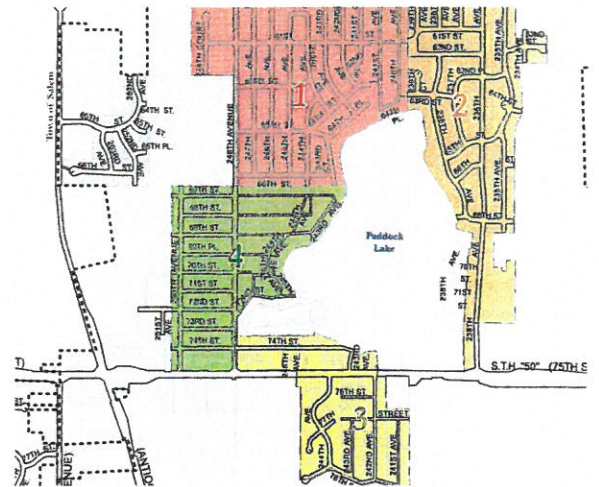
# Golf Carts

The 2021 golf cart registration is in full swing. To be able to operate your golf carts legally on the village road right of way you must register your golf cart *every year* with the village. In order to register you must not owe any money to the village (outstanding taxes or unpaid sewer bills) and the golf cart needs to be inspected by the Kenosha County Sheriff's Department. Please pick up a registration form at the Village Hall or you can print one from our website. The permit fee is \$50.00. All drivers **MUST** be 16 years of age and possess a valid driver's license. ATV's and UTV's are not permitted on village streets.



**Clear the Clog!**

Fallen leaves and debris can clog storm drains causing water to back up and flood streets, yards and homes. Help prevent flooding by clearing storm drains and ditches using a rake or similar tool. Before storms or heavy rain, quickly check to make sure storm sewers and driveway culverts in your area are not blocked with leaves, grass clippings or other debris. You can also report clogged drains to the village hall by calling 262-843-2713.



**Optional yard waste drop off locations:**

- Public works facility at the east end of 62nd Street
- 250th Ave. & 67th Street
- Hooker Lake area, 78th Street & 244th Ave

## DID YOU KNOW?

Most people are used to paying their household bills on a monthly basis. This makes it easier to budget. But did you know that you can also pay towards your quarterly sewer, garbage and/or water bill on a monthly basis? Many residents have began making payments towards their quarterly bill during the three months leading up to the billing cycle. For example:

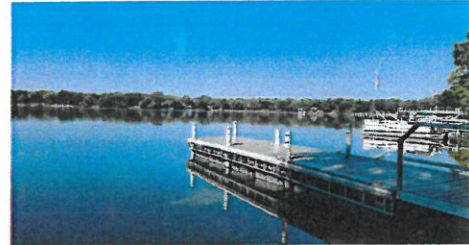
If your bill will be \$259.64 for July you can pay \$86.55 in May, June and July. The full balance will still need to be received by the due date, which is usually around the 20th of the month. For customers on water, the amount may vary based on usage. If you have any questions, please feel free to speak with staff, as we can help you figure out your average and determine an amount that would best suit you.

## ATTENTION RESIDENTS:

If you experience an emergency situation regarding water/sewer at your home after regular office hours of 8:00 am-4:30 pm please call the Non-Emergency number at :

262-843-2371

Please check the village website for any updates.  
[www.paddocklake.net](http://www.paddocklake.net)



## LAKE DISTRICT ANNUAL MEETING – AUGUST 21, 2021 MEET AND GREET AT 8:30 AM

### BOATING REGULATIONS

#### Slow-No-Wake Hours on Paddock Lake

Monday	7 pm	to	10 am
Tuesday	Sunset	to	10 am
Wednesday	7 pm	to	10 am
Thursday	Sunset	to	10 am
Friday	7 pm	to	10 am
Saturday	7 pm	to	10 am
Sunday	6 pm	to	10 am

All motorized craft move in a counterclockwise direction. Boats must maintain a 100-foot distance from all piers and buoys. Personal watercrafts are restricted to slow-no-wake anytime the craft is within 200 feet of the shoreline. Report violations to police dispatch, 843-2371

### 2021 BOAT LAUNCH FEES

The boat launch fees at Paddock and Hooker lakes will remain the same. The daily launch fee will be \$7.00. You may purchase an annual pass, for residents the cost is \$35 for one lake and \$45 for both lakes. Non-residents pay \$40 for one lake and \$55 for both lakes.

### FIRE AND BURNING REGULATIONS- Ord. 25.09

- Recreational fires are allowed. The flame must not exceed 4 feet in height and 30 inches in diameter.
  - Camp fires must be surrounded by metal, concrete, brick, stone or earth or in a metal container
    - Fires MUST be attended by an adult at all times
    - Fires may not disturb the public
  - Only branches or logs may be burned in camp fires. **No** burning of leaves, rubbish, trash or construction material
- Burning is allowed on private property only, no burning in gutters, ditch lines or within 10 feet of any building or closer than 15 feet from a property line
  - Permits are required for bonfires, please contact the Building Inspector 843-3617

The Sheriff's Department and Salem Fire Department may order fires extinguished if it creates a safety concern

## Water Softener Tips to help reduce chloride

Check to see how your softener is calibrated. Some softeners are preset for the highest hardness setting at the factory. This setting may be as hard as 30 grains. Reset the hardness to 20 grains.

Soften only water used inside the home. Do not treat the outside hose faucets.

Check the timer. When was it last adjusted? Many of us move into a house or purchase a water softener and never check it again. Children move out or other factors come into play that affects the amount of water we use. If your softener is regulated by a timer, you may be able to increase the interval between regeneration cycles without affecting the water quality. Increase the time by one day and see if there is any effect on dish washing and laundry during the next month.

When you do not help your 4 legged friend pick up their poop you are not only breaking the law (Ordinance 19.04 (a).) but you are risking your health as well as the health of your whole neighborhood. Pet Waste contains many contaminants and pollutes the waterways. To avoid a fine of **\$109** all you need to do is scoop the poop. Carry a disposable bag when walking your dog. Tie the bag to the leash to ensure you have one ready for when the inevitable happens.

REMINDER: Per state law, all dogs over 5 months old must be licensed through the village. Proof of rabies vaccination is required.



## ELECTRONIC WASTE DROP-OFF

On Saturday, **May 15, 2021 from 9:00 A.M. until 12:00 P.M.** there will be dumpsters at the public works facility at the east end of 62<sup>nd</sup> Street. Residents are invited to dispose of their unwanted e-waste items (computers, telephones, televisions and anything with a power cord) at NO charge.

Sorry, some things are **not** accepted. Do not bring bulk items, tires, refrigerators, air conditioners, paints, solvents, oil, pesticides, or any other hazardous material.

## New Bulk Pick-up procedures

As of January 1, 2019 John's Disposal will no longer be automatically picking up bulk items every week with regular trash pick up. (Bulk items include large items such as furniture or anything that will not fit into your regular trash receptacle) Residents can still have up to one free bulk collection every week, however you must call John's Disposal office to schedule your collection at least 48 hours in advance. Please do not place items out if you have not scheduled pick-up with JOHNS.

**The number is (888)473-4701**



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Dear Resident,

The Village of Paddock Lake is committed to protecting the environment and keeping under control sanitary sewer system operational costs. Our residents expect the Village to do everything we can in this regard. We further know that the protection of the environment and control of operation costs can only be achieved through cooperation of everyone involved.

In the spirit of cooperation, the Village Sanitary Sewer Utility District requests that Village residents perform a self-check-up of their water softeners to ensure the softener is operating at its highest efficiency.

#### **FREQUENTLY ASKED QUESTIONS ABOUT CHLORIDE AND WATER SOFTENERS**

The Wisconsin Department of Natural Resources has recently reissued the Village's wastewater discharge permit. This new permit requires lower limits on chlorides that the treatment plant discharges to the Brighton Creek, the current limit is 510 mg/liter, with new limits being reduced to 460 mg/liter. Chlorides or salts are not something we can treat at our sewer plant; therefore, we must concentrate on reducing chlorides in the water coming into the sewer plant, i.e., water softeners and road salts. The Village is constantly trying to reduce the amount of road salt used on icy roads. Water softener usage, on the other hand, is entirely up to the residents.

If the Village and residents are unsuccessful in reducing the amount of chlorides in the wastewater, the alternatives are an increase in operational costs and sanitary sewer rates.

#### **What is it?**

Chloride is one of two components of sodium, also known as table salt or rock salt. When salt dissolves in water, it separates into sodium (Na<sup>+</sup>) ions and Chloride (Cl<sup>-</sup>) ions.

#### **Where does Chloride come from?**

Lesser amounts of Chloride come from soaps, detergents, and other cleaning products. Some also comes from commercial processes and road deicing operations. A significant amount of Chloride comes from self-regenerating water softeners and underperforming water softeners.

#### **Our Environment**

##### **Why should I care about Chloride?**

Our freshwater streams and lakes contain low levels of naturally occurring salts, including chloride. These salts are essential to the aquatic organisms that live there. However, high concentrations of Chloride are harmful to aquatic plants and animals.

### **How does salt/chloride get into the Environment?**

From the water softener, Chloride is flushed into the sewer where it goes to the wastewater treatment plant. Treatment plants are designed to remove particles, like grit and sand, and to biologically degrade organic waste, such as food and human waste. Once Chloride is dissolved in water it cannot be removed by settling, or biologically degraded by standard treatment processes. Chloride that comes to the Village of Paddock Lake treatment plant passes through the plant untreated and to the Brighton Creek and eventually the Des Plaines River. About 1150 pounds of salt pass through the Village of Paddock Lake plant to the environment each day.

### **Can treatment plants be modified to remove Chloride?**

The technology to remove Chloride is available but is very costly. It would involve microfiltration and reverse osmosis, which are the same treatment processes used to produce pure water used in laboratories. One Wisconsin community determined that it would cost about twenty cents to add a pound of Chloride at the water softener, and \$5.00 to remove it at the treatment plant. Households with poorly performing softeners can use up to 100 lbs. of salt a month in their water softeners.

### **Hard Water**

#### **What makes hard water hard?**

Rainwater that falls is "soft." It does not contain any minerals. As it percolates through the soil, water dissolves minerals which can include Iron, calcium, and magnesium. Water with substantial amounts of Iron, calcium and magnesium is referred to as "hard water."

#### **How do you measure hardness?**

Hardness is measured in terms of grains per gallon (g/gal) or milligrams per liter (mg/l). If you were to evaporate one gallon of water that had a hardness of 5 grain/gal, the residue would be equal to one-5-grains or an aspirin tablet size. Laboratories often record hardness as mg/l or parts per million (ppm). One g/gal hardness is equal to 17.1 mg/l of hardness. In the example above, 5 g/gal equals 85.5 mg/l hardness. Water that is 10 g/gal or more is considered very hard.

#### **What is the problem with hard water?**

The minerals in hard water can be deposited as scale on pipes and in hot water heaters. They also chemically interact with soaps and detergents and make them less efficient. For example, it takes 50% to 75% less detergent to clean laundry in soft water than hard water.

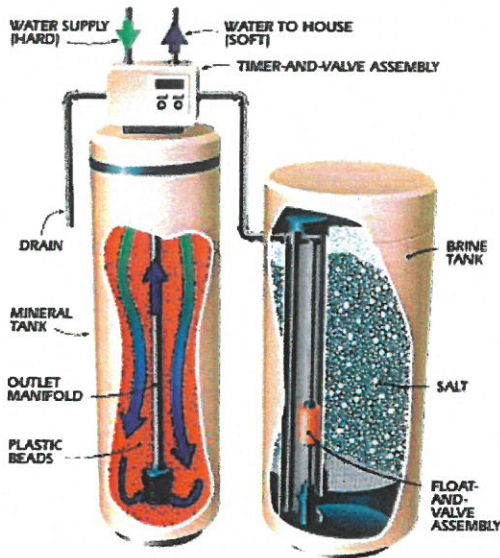
#### **Why is my water hard?**

The hardness of water from the wells in Paddock Lake are typically between 7 to 30 g/gal. Various minerals that are pumped from private water wells make our water hard.

### **Water Softeners**

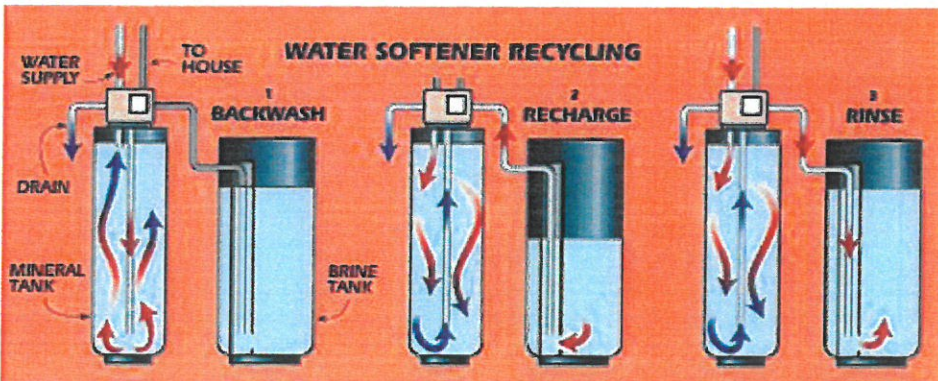
#### **How is water Softened?**

Home water softeners have two tanks: a mineral tank that contains resin in the form of small beads, and a brine tank which holds the sodium salt chloride (salt) solution, as water flows through the mineral tank, the hard minerals, magnesium (Mg++) and calcium (Ca++) ions, replace sodium (Na+) ions on the resin, this process is called ion exchange. The water that flows out is considered "soft" because sodium ions do not build up on pipes as lime or interfere with detergents and soaps.



### What is the Regeneration Cycle?

Eventually, the resin reaches its limit as to how much calcium and magnesium it can hold. At this point, the resin is flushed with a strong brine solution from the brine tank. Because of its high salt concentration, the brine washes off the calcium and magnesium and replaces them with sodium. The minerals and brine wash go down the drain and into the sewer system. New salt must be added regularly to the brine tank to replace the salt that is used to regenerate the resin. The regeneration cycle can be initiated by a timer or by demand. A timer regulated softener regenerates the resin after a fixed amount of time regardless of how much water is used. A Demand-Initiated Regeneration (**DIR**) softener either tracks the amount of water used or utilizes a hardness sensor to indicate the resin is near capacity and needs to be regenerated. A **DIR** softener is the more efficient softener in terms of salt and water usage.



The back wash phase removes hard water deposits from the mineral tank.

\*Recharging the mineral tank with sodium from the brine solution displaces calcium and magnesium, which is washed down the drain.

\*The final phase rinses the mineral tank with fresh water and loads the brine tank, so it is ready for the next cycle.

## What Can I Do?

Check to see how your softener is calibrated. Some softeners are preset for the highest hardness setting at the factory. This setting may be as hard as 30 grains or more. Reset the hardness to 20 grains.

Softener only water used inside the home. Do not treat the outside hose faucets.

Check the timer. When was it last adjusted? Many of us move into a house or purchase a water softener and never check it again. Children move out or other factors come into play that affects the amount of water we use. If your softener is regulated by a timer, you may be able to increase the interval between regeneration cycles without affecting the water quality. Increase the time by one day and see if there is any effect on dish washing and laundry during the next month.

Old and hardworking softeners require annual cleaning of the systems resin beads and resin tank to remove mineral deposits not removed during typical regeneration cycles. There are multiple how-to videos on You Tube that provide tutorials on how to tune-up and clean water softeners, two are lists below:

[Youtube.com/watch?v=jr0E-KLwrA](https://www.youtube.com/watch?v=jr0E-KLwrA)

[youtube.com/watch?v=EnVzkQLeP9Q](https://www.youtube.com/watch?v=EnVzkQLeP9Q)

If you are replacing your old softener, replace it with a softener that regenerates based on a meter or a sensor. The Benefits to you are a substantial cost savings from your salt and water usage reduction, with the added benefit that you are helping to protect our environment right here in the Village of Paddock Lake.

### Discharge of softener

Under the State of Wisconsin plumbing code and the Village of Paddock Lake code, the by-pass water from a softener may be discharge to a clear water sump pump or to the surface of the ground provided a nuisance from the discharge water is not created.

**Together the residents, Village Board and the Village Staff can avert the need to construct an expensive sewer treatment plant micro filter and prevent future increases to sewer user fees.**

If Village households could reduce their softener salt use by as little as 1/4<sup>th</sup> of a bag (10 lbs.) per month the Village sewer treatment plant could see a reduction of chloride by as much as 500 pounds per day.

For Assistance or Questions, please Contact the Village of Paddock Lake Administrator at 262-843-3617

Additional information pertaining to chloride, softeners and road salt can be found at:

[Paddocklake.net/water-sewer](http://Paddocklake.net/water-sewer)

Wisconsin Salt-Wise- [wissaltwise.com](http://wissaltwise.com)

EXAMPLE

**Winter Weather Report No. 21-12-12**

January 4, 2022

To: Village Board of Trustees

From: Tim Popanda, Village Administrator 

**Subject:** Winter weather report for **Tuesday Dec. 28, 2021**, snow began at 12:00 pm and continued until 6:30pm, In total the VPL received 2.75 inches of snow and freezing rain. Being the first snow of the season, the roads became very slippery.

**Conditions:** 31-35 degrees.

**Operations:** On 12/28/021 began at 12:30 pm, all three DPW worker plowed and salted, operations continued until 7:00 pm.

**Equipment Amortized costs:**

3- Medium duty trucks used for 16.5 hours at DOT rate of \$81.64/hr.	\$1,347.06
1-Loader 1 hrs. @ \$75.00/hr.	\$ 75.00
	<u>\$1,582.73</u>

**Labor, to include benefits:**

DPW and hours	Straight	Time and half	Double time	Total
DPW #1, 6.5 hrs.	3 hrs @33.70	3.5 hrs @48.22		269.87
DPW #2, 6 hrs.	3 hrs @38.36	3 hrs @52.18		271.62
DPW #3, 5 hrs	3 hrs @32.84	2 hrs @43.90		186.32
				<b>727.81</b>

**Materials:**

<u>13 tons of salt/gravel mix 70/30 at \$55.36/ton</u>	<u>\$719.68</u>
<b>Total</b>	<b>\$3,030.22</b>

Material	Amount in tons	Amount in pounds	Treated miles	Applied rates/mile
Salt	9.1 tons	18,200	twice 74 miles	245 lbs./mile
Pea stone	3.9 tons	7,800	Twice 74 miles	105 lbs./mile