

CENTERVILLE LAKE ALUM TREATMENT FREQUENTLY ASKED QUESTIONS

ALUM TREATMENT

What is Alum?

Aluminum sulfate (“alum”) is one of the most widely used substances in water and wastewater treatments (USA EPA). It’s often used to address issues related to excessive nutrient levels, particularly phosphorus, and has been used in lakes across the United States and Europe to improve water quality for decades.

How does Alum work?

When applied to water, alum forms a “fluffy” aluminum hydroxide material called “floc”. As the floc settles, it removes phosphorus and particulates (including algae) from the water column by binding to it. The floc settles on the sediment (aka lake bottom) where it forms a layer that acts as a barrier to phosphorus. Phosphorus that would release from the sediments on the lake bottom, is “locked” in place by the alum and can’t go back into the water to fuel algae blooms.

Why are we doing this Alum treatment?

Alum reduces phosphorus, which is a significant contributor to the lake's poor water quality and harmful algae blooms (see photo below). Algae blooms like this can produce toxins that are dangerous to animals and people. Alum will improve water clarity and create a healthier lake. Alum is cost-effective and has a proven track record in restoring water quality in lakes facing similar challenges.



Figure 1 Harmful Blue Green Algae Bloom on Centerville Lake

How long will the application take? About a week and a half

When will the treatment begin? Either early spring or late fall

What will the lake look like during treatment? Milky-white but changing to clear water very quickly.

How long will the effects last? Since Centerville Lake doesn’t receive much phosphorous from *outside* the lake, this treatment is expected to last about 20 years.

Does an alum treatment fix all water quality issues?

While an alum treatment can significantly improve water clarity/quality by reducing phosphorus levels, it may not address all issues. **Continuous monitoring and long-term management** strategies such as water quality monitoring, restoring shorelines with native plant communities, controlling invasive species, and installing other stormwater management practices around the lake are needed to protect and keep the water quality good.

What happens after the alum treatment?

You’ll see an improvement in water clarity right after and into the following months. This improved clarity **WILL** support the regrowth of native aquatic plants. These plants are **essential** to providing habitat for aquatic life and to further improve water quality. A decrease in phosphorus will also help control algae blooms in the future.



Figure 2 Example of the native aquatic plant communities that will regrow on Centerville Lake

SAFETY CONSIDERATIONS

Can I swim? Can my dogs swim? What if my dog drinks lake water?

The short answer is yes, you and your dogs can swim. Health risks from alum are **VERY** low.

- Alum sinks quickly to the bottom. Coming in direct contact with the alum is **very** low.
- There are **no** restrictions on swimming or using water to water plants/lawn
- No permit is needed from Minnesota Department of Natural Resources or the Minnesota Pollution Control Agency to apply alum

Other Considerations:

- Alum is used often in our drinking water treatment plant process. St. Cloud, St. Paul, and various other cities across Minnesota use this in the process of clean drinking water
- Alum is the primary ingredient in the OTC antacid Maalox
- Aluminum is found in many foods

Are there any long-term health concerns for humans?

The American Alzheimer's Association says there's no link between aluminum sulfate and memory loss (a common myth). Sources: <https://www.alz.org/alzheimers-dementia/what-is-alzheimers/myths> and <https://www.alzdiscovery.org/cognitive-vitality/blog/is-there-a-link-between-aluminum-and-alzheimers>

Does it hurt fish and aquatic life?

When used appropriately, there is a **VERY** low risk to fish. Aluminum toxicity is a concern for fish when too much alum is applied too fast. **RCWD will make sure this is not an issue and alum is applied correctly.** Minnesota Pollution Control Agency guidelines for alum application require that the pH remain within the 6.0-9.0 range.

COMMUNITY INVOLVEMENT

How can I support this project and other water quality work?

Attend all public meetings regarding this project. Let city and county staff know you support this project and support improving water quality on Centerville Lake. Contact staff at RCWD to do your own water quality project such as a rain garden or shoreline restoration with help from RCWD's Grant Programs, <https://www.ricecreek.org/grants/water-quality-grants/>

Contact Information

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