

## New filter material shows promise

Stormwater treatment is becoming an important part of protecting water quality in our urban environments. When storms hit and send rain over streets and lawns this water is sent into drains that flow into our lakes and streams. One of the most difficult contaminants to remove from stormwater is phosphorus. The irony is that phosphorus is one of the contaminants we are most interested in removing!



High phosphorus levels in Lake Whatcom account for a decrease in dissolved oxygen.

Phosphorus clings to soil and is carried into the lake by runoff. Keeping phosphorus out of Lake Whatcom is the most important thing we can do to protect water quality. The City's Public Works Department has been working to improve stormwater facilities in the city-limits portion of the watershed 1992, with less than perfect results.

Many government agencies are facing similar challenges in their attempt to remove phosphorus from stormwater and to date, there is no perfect solution. Our constant search for the latest and greatest technology has resulted in the discovery of activated alumina.

## Activated Alumina

Recent studies from the California Department of Transportation (Caltrans) and the U.S. Navy have shown that aluminum oxide or alumina - tiny white chips of oxygenated aluminum - shows great promise for effectively removing phosphorus in stormwater. Alumina, an expensive chemical used to remove arsenic from drinking water, has only recently been used to try to remove contaminants from stormwater. After \$4.5 million worth of testing engineers at Caltrans stormwater laboratories say alumina looks very promising.

The City of Bellingham laboratory decided to replicate experiments conducted by Caltrans on a small scale to see if alumina would remove pollutants from stormwater in Bellingham. Lab staff took a small scale filter column filled with sand and added increasing concentrations of alumina to the mix. This sand filter was put in place at a stormwater treatment pond in the Lake Whatcom watershed. It was found that the filter with the highest amount of alumina also removed the highest amount of contaminants from stormwater. The contaminants reduced included phosphorus.



With programs like the Lake Whatcom Watershed Stewards Pledge, Hounds for Healthy Watersheds and others, we continue to remind watershed residents how they can have a positive or negative impact on the quality of water in the Lake, and offering tools to help them make good choices to reduce their impact.

While the best way to keep our streams and lakes clean is to keep pollutants from getting into the water in the first place, the City is working diligently on the difficult task of removing those contaminants that *do* get in the stormwater. Alumina filtration will be part of the City's treatment toolbox for removing contaminants from stormwater, but the search for better technology will continue.