

Stormwater Treatment

Problem

Streets, lawns, roofs, driveways, parking lots and agricultural lands produce stormwater runoff that contains phosphorus, nitrogen and heavy metals contamination. This polluted stormwater then flows to the neighboring rivers, streams and lakes. Phosphorus can cause the eutrophication of these bodies of water. The added phosphorus generates an increase in algae blooms that severely degrade water quality.

Some species of algae, called blue-green algae, or cyanobacteria can release toxins into the water that can kill fish and are harmful to humans.

Other less toxic forms of algae also can severely degrade water quality. Algal blooms are the result of an excess of nutrients, particularly phosphorus. The excess of nutrients, that may originate from fertilizers applied to land for agricultural or recreational purposes, can then enter watersheds through water runoff. When phosphates are introduced into water systems. Higher concentrations cause increased growth of algae and plants. Algae tend to out-compete plants under these conditions, and many plant species may begin to die. This dead organic matter becomes food for bacteria that decomposes it. With more food available, the bacteria increase in number and use up the dissolved oxygen in the water. When the dissolved oxygen content decreases, many fish and aquatic insects cannot survive.

In addition, urban stormwater contains heavy metals (e.g. As, Cd, Cr, Cu, Ni, Pb, and Zn) in varying concentrations. They are, unlike organic pollutants, not degradable and may cause short and long term negative effects in the environment. Thus, heavy metal removal from stormwater is important to protect the receiving water and soil quality. **EnviRemed** can remediate the above-mentioned metals from water and soil.

Solution

EnviRemed can remove phosphorus from the stormwater basins with a geochemical media that will bind the phosphorus in a non-leachable matrix, thus permanently removing the phosphorus from the runoff water. Treatment protocols for water systems are varied, and are developed on a site-specific basis.

Reagents, both prior and after application, cannot be classified as either a hazardous or dangerous waste, as defined by regulatory guidelines worldwide, including the Hazardous Waste Act. For these reasons, our reagents are considered safe to transport, safe to handle, and safe to apply, and are not toxic to plants, soil biota, fish or other aquatic life when assessed using worldwide standards of toxicological practice. Reagents are there for considered to be fully sustainable and healthy for the environment.

EnviRemed technology has proven to reduce the amount of phosphorus.

EnviRemed tested this process on water from STA 1E and 1W and Harney Pond Canal locations through two independent laboratories in Florida utilizing a proper chain of custody, so the water samples never reached EnviRemed. Test results show a 98 to 99% removal of phosphorus.

Phosphorus (ppb)	Pre-treatment	After Treatment
STA 1E & 1W	259	4
Harney Pond Canal	549	7

Treatment Scenarios

Our simple, proven environmentally-safe processes can save you time and money and provide the answer to treating phosphorus.

This technology has been applied around the world in a variety of direct addition and filtration applications, “Direct Addition” applications involve the direct mixing of a reagent with a contaminate, such as dosing a slurry into a wastewater stream, mixing a powdered reagent into a solid stream, or any other method of bringing a reagent into direct contact with contaminants, such a phosphorus.

Filtration applications involve the passing of a contaminate waste stream through a porous filter medium in order to bring the contaminate into contact with the medium and thereby remove the contaminate from the waste stream. Filtrations is considered to be a “passive” treatment method, because it does not involve bringing the reagent to the contaminate, but rather passing the waste stream passively through the filter by either gravity or under pressure and allowing the filter medium to react with the contaminate.

As with direct addition, filtration involves bringing the contaminate into direct contact with the reagent. The filter system may be engineered in a variety of ways, including as an in-ground or above-ground permeable reactive barrier (“PRB”), as an open–under baffled tank, as a filter bed in a lagoon, or in a pressurized tank.

One of the most applicable and practical designs for the treatment of runoff from agricultural operations such as small farms, and municipal wastewater is the use or conversion of existing, disused or new lagoons as filter beds for wastewater treatment.

EnviRemed

EnviRemed is a consortium of top scientists, engineers, contractors and businessmen who have united to offer the best available technology to provide safe and natural solutions for governmental authorities, corporations, and private citizens to create a cleaner future for our planet.

Available worldwide, we offer environmentally friendly solutions that help your bottom line and the expertise to implement them. Through simple processes we have saved our customers millions of dollars, thousands of man hours, and improved the way they take care of their business.

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