



Low Impact Technologies to Reduce Pollution from Storm Water Runoff

Background

Navy industrial sites are required to use storm water Best Management Practices (BMPs) to prevent pollutants from entering nearby water bodies during storm events. Particulate and dissolved metal pollutants found in storm water runoff can cause a significant water pollution problem. The elevated metals content can be attributed to outdoor metal working processes such as cutting and grinding, to outdoor storage of metal objects, and to the use of metal bearing coating materials such as corrosion inhibiting and anti-fouling paints. Suspended solids and organic materials are also problems at certain industrial sites.

Most commercial off the shelf storm water treatment technologies are designed for municipal applications where the main contaminants of interest are trash, nutrients, and sediment. Also, most storm water treatment technologies require large areas of land for detention basins and similar structures. Space is often at a premium at many Navy sites, especially waterfront locations.

Technology

Engineers from the NAVFAC Engineering and Expeditionary Warfare Center have developed and tested an innovative filter-adsorption media bed system that reduces the concentration of metals, hydrocarbons, suspended solids, and other pollutants in storm water runoff. This system was recently demonstrated at the Naval Regional Recycling Center (NRRC) in San Diego, CA.

The filter-adsorption media bed is a layer of gravel over a layer of bone char over a layer of ferrous coated activated alumina. The demonstration effort showed that the media bed could remove copper, zinc, lead, cadmium, and other metals to very low concentrations.

The system's media bed is expected to last a minimum of 10 years before needing to be replaced. Routine maintenance consists of removing and replacing the top inch of gravel on the media bed. The expended media at the end of its useful life will need to be tested to determine disposal requirements.

Technology Benefits

- **Effective** - The storm water treatment system has consistently passed the applicable metals discharge permit requirements while a comparable commercial system met these requirements only one-third of the time.
- **Space Saving** - The storm water treatment system requires a smaller amount of space compared to competing BMP technologies, making it attractive for military and industrial sites with limited available working space.
- **Low Maintenance Costs** - The media bed is expected to last at least 10 years before requiring replacement. Routine upkeep is expected to consist of removing and replacing the top inch of gravel on the bed annually.
- **Compliance with Navy Policy** - Navy policy directs that low impact development be considered in the design for all projects that have a storm water management element.

Availability

This technology is patented and available from the Navy's licensee:

CAMTEK Construction Products Corporation
3481 Treeline Drive
Murrysville, PA 15662-1523
(724) 327-3400

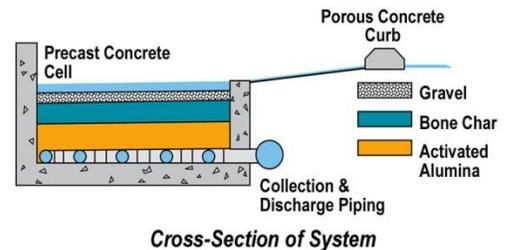
Sponsored By:

Navy Environmental Sustainability Development
to Integration (NESDI) Program - NESDI ID# - 210

Environmental Security Technology Certification Program
(ESTCP) - ESTCP Project # - SI-0405



Activities at NRRC San Diego



Installation at NRRC San Diego

Points of Contact

Technical:

Gary Anguiano
(805) 982-1302, DSN 551-1302
gary.anguiano@navy.mil

Integration:

Andrew Drucker
(805) 982-1108, DSN 551-1108
andrew.drucker@navy.mil