

Lopez, Chris@Waterboards

From: info@cleanwatertechnologies.net
Sent: Monday, August 28, 2017 4:53 PM
To: WB-RB4-losangeles; ageorge@dpw.lacounty.gov; palva@dpw.lacounty.gov
Subject: [FWD: Objection to Approval of Filterra Biofiltration BMP Design - by [BAT , BCT Storm Water BMP-"The _Bio_Eco_Healer _Filter _Reac tor:_Storm_and_ waste_water_fi ltr ation_sy ste m"_]]
Attachments: Bio-SWIPES BMP product and performance comparesons wtop 10 BMPs.docx

Sam Unger and Ivar Ridgeway , L.A. Water Boards , California.Gov

RE: OBJECTION TO ENDORSEMENT OF FILTERRA BIO-FILTRATION DESIGN EQUIVALENCY,
pursuant to The State Water Board NPDES permit roles & U.S. EPA CWA (40.C.F.R.section 122, et seq)
submitted by County of Los Angeles MS4 Permit (Order. R4-2012-0175) .

Dear Mr. Unger and Dr. Ridgeway,

Please be advised that APD Clean Water Technologies Group LLC , inventors , designers, developers and manufacturing of , patents pending , "Bio-Storm-Water Industrial Pollution Elimination System" BMPs (Bio-SWIPES) and "Bio-Storm-Water Innovative Filtration Technology" (Bio-SWIFT) BMPs .
(see attached introduction and Bio-SWIPES Reduction Achievements Comparisons Biofiltration BMPs) .

This objection is based on the facts that Filterra Biofiltration Equivalency Design Approach fails to meet L.A. County MS4 Permit minimum requirement to Capture , Treat and Infiltrate program objectives .
Facts are that the proposed equivalency designs seeks to achieve Bio-Filtration thresholds which in themselves fall way way short in meeting the NPDES and MS4 Permits requirements (submitted designs seek to achieve about 16% of storm water reduction requirements and do more harm than good for decreasing storm water pollution , Hence quoted International Biofiltration BMPs performances data clearly show that for the most part the proposed " Design Equivalency provided data are contestant in showing increase "import" of water pollutants such as Arsenic , cadmium , TDS, EC , phosphorus , nitrogen, NO2+NO3 , TKN , when utilizing Filterra Tree box , Biofilter grass strips , Biofilter grass swales , Bio-retention , Composite and Media filters .

The Water Boards have the responsibility to enforce the law and to promote the state's water , soil , air , public and environment's health . not to authorize rolling back of the already low MS4 requirements which are

based on outdated 19th century BMPs such as directing toxic or polluted water for filtration in the soil . This in turn damages the soil and farther pollutes the ground water , this is evident from increase in storm water pollutants when diverted to soil for infiltration before treatments. The pollutants build up in the soil and continue to pollute the soil water and air .

Additionally approving the proposed Filtrera Biofiltration Designs will clearly achieve the opposite of California Senate Bill SB-985 Storm-water resource Bill and State Water Boards efforts and planning to implement its terms , among other and the least of which is to Capture Urban Storm Watershed and Treated free of urban pollutants before water is infiltrated .

If approved The Water Boards , L.A. County and the cities will be in violation of California and the U.S.

Federal EPA's mandate to control pollutants in stormwater discharges. (40 C.F.R. section 122, et seq.)

"The NPDES permit must require implementation of Best Available Technology Economically Achievable (BAT) and Best Conventional Pollutant Control Technology (BCT) to reduce or prevent pollutants in storm water discharges (NSWSs) " .

Enhanced Bio-SWIPES BMPs achieve storm water highest flow rates to Capture Treat at up to 720 g/h/sf to capture and treat design criteria of up to 1" rain per hour and 4.3" per day . with a yet smaller footprint .

Following video clip introduction to enhanced " Bio-Storm-Water Innovative Water Pollution Elimination Systems " (Bio-SWIPES) BMPs and performance comparisons with top 6 International Storm-Water BMPs .

We reserve the right to submit additional data , material documents and argument in support of our objection

at time of hearing by the water boards and to submit additional third party data of Bio-SWIPES BAT, BCT

Achieving the highest pollution reduction standards in the industry .

Best regards
Michael Omary , President and CEO
APD Clean Water Technologies Group LLC ,
Inventor and Developer of , Patent Pending ,
Bio-Ecology Healer Filter Reactor , and
Enhanced Bio-SWIPES BMPs
32701 Mulholland Hwy
Malibu , California 90265
Tel ; 310-745-4779
email ; info@cleanwatertechnologies.net
websites : www.bio-swift.com

Subject: [FWD: Michael Omary's video:_"The Bio Ecology Healer Filter Reactor" and "Storm and Industrial Waste Water Pollution Elimination System" (BiO SWIPES) .

Michael Omary has shared a video with you on YouTube



The Bio Eco Healer Filter Reactor: Storm and waste water filtration system

by Michael Omary

Bio-Eco-Healer Filter Reactor technology, is a new cutting-edge technology application for water quality management BMPs for point source and non-point source water and soil hazardous. Our best management products (BMPs) offer a gravity-operated, low energy, and chemical free way of treating industrial and sewerage and urban wastewater pollution for:

- Neutralization of high pH acidity , TDS , EC , and kills pathogens .
- High efficiency reduction of organic nutrients and conventional chemicals.
- High efficiency (above 90%) removal of all Title 22 metals.
- High efficiency petrochemicals water reclamation.
- Anaerobic microbial digestion of hazardous pollutants prolong reactors service life and reduce maintenance costs .

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Introduction of Bio-Storm-Water Industrial Pollution Elimination Systems (Bio-SWIPES™)

- Innovative technology, patent-pending, “Biological-Ecology Healer Filter Reactor”™ (Ecology Healer™), utilizing natural process of Ion Exchange, Absorption and Anaerobic digestion to reduce or eliminate conventional urban streets’ surface water runoff, setting the highest pollution reduction in the industry. Self-rejuvenation prolongs Ecology Healer’s service life, eliminates slug and reduces maintenance.
- Is the best available technology achieving the highest pollution reduction in the industry.
- Enhanced Bio-SWIPES BMPs will fully comply with NPDES regulations, when utilized to capture, treat and reuse dry weather and storm water runoff, and superior in reducing various pollutants.
- Bio-SWIPES BMPs will operate passively during storm event or dry weather water runoff.
- Bio-SWIPES BMPs will not retain water in the unit, thus eliminating the potential vectors or clogging.
- Pathogens, such as *E. coli*, fecal coliform, total coliform bacteria and viruses in water flowing through the reactor chamber, are destroyed by the electromagnetic energy of the ion fusion/exchange activities.
- Requires no personnel to be onsite prior to or during a storm event to initiate operation or to perform maintenance to keep the BMP operational.
- **Ecolo**

Flowthrough BMP Operated by gravity: Designed and constructed so Bio-SWIPES™ can be effectively operated and maintained during its intended design life of 30 year or more.

Bio-SWIPES™ BMP Design: Designed to capture and treat the minimum volume of 90% percentile to 24-hour storm event, design event, at a flow through capacity of 720 g/hr./ft² BMP.

Table 1: Bio-SWIPES Facts: Stormwater Capture and Treatment Design Criteria	
Bio- SWIPES BMP Design Criteria	1 acre ft./day (326,000 gallons)
Service impervious area	up to 13 acres of city streets (3 miles)
Annual volume of water capture & reuse	up to 20 acre ft./day
Project life of service	30 years
Capital Investment	1,260,000 including 10 yrs. or parts and filter warranties

This technology significantly reduces the following water pollutants:

- **Microbiological:** Fecal, total coliform and E-coli bacteria reduced to non-detectable levels
- **Hydrocarbons:** Reduced by 99% or more
- **Mercury:** Reduced to non-detectable
- **Title 22 Metals:** 93% average reduction achievement
- **Conventional chemistry/physical parameters:** Reduction rates above 90%

Additional pollutant reduction values are shown in Table 2, Pg. 2 of this document.

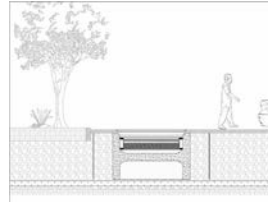
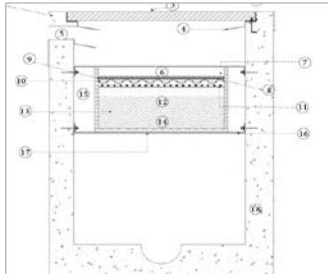


Table 2: Influent and effluent summary statistics for various pollutants, showing Bio-SWIPES™ performance compared to 5 international stormwater BMP's databases (Leisenring et al. 2014).

Enhanced Bio-SWIPES™ Pollution Reduction Performance Comparison												
Key:	80% or greater reduction				60-79% reduction				40-59% reduction			
	0-39% reduction				increase of pollutant				ND = None Detected (below 10 ⁻¹⁵)			
NA = No Data												
Pollutant	* Bio-SWIPES Ecology Healer		**Biofilter Grass Strip		**Biofilter Grass Swale		**Bio-retention		**Composite		**Media Filter	
	Influent	Effluent	Influent	Effluent	Influent	Effluent	Influent	Effluent	Influent	Effluent	Influent	Effluent
Total Coliform Bacteria	5,000	ND	NA	NA	11,000	1,000	2,400	2,400	NA	NA	NA	NA
Fecal Coliform Bacteria	16,000	ND	NA	NA	20,250	16,750	NA	NA	36,690	20,570	10,333	5,573
Mercury	0.849	0.004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	47.5	4.35	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	51.9	1.72	1	2.02	1.7	0.85	NA	NA	NA	NA	1.13	1
Barium	88.9	41.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	51.9	0.386	0.23	0.2	0.4	0.2	0.05	0.2	NA	NA	0.2	0.2
Chromium	55.7	4.29	3.83	3.6	3.4	3.2	NA	NA	NA	NA	1	1
Copper	46.4	1.14	19	8.45	13.7	9.48	9.7	13.45	30	10	7.6	6.9
Lead	78.6	28.6	2.6	1	6.25	3.21	0.13	0.1	32.4	3.2	1.5	1
Oil & grease	19	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	48.2	3.24	68	28.5	70.1	32.3	53.5	23	50	20	84	21
TKN	0.909	ND	1.93	1.65	1.38	1.23	2.1	2.47	2.71	1.39	1.8	1
NO ₂ +NO ₃ as N	4,610	2,580	0.42	0.3	0.5	0.46	0.54	0.97	1.4	0.96	0.59	0.94
Phosphorus as P	0.555	0.314	0.249	0.339	0.24	0.28	0.246	0.6	0.65	0.219	0.283	0.16
Nitrogen	2,370	481	2.05	1.55	1.5	1.6	1.87	1.61	3.49	1.8	2.11	1.72
Glyphosate	32.7	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TDS, conductance EC	1180	199	80	134	87.3	92	NA	NA	NA	NA	82.2	134
pH	13.5	7.41	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

* Bio-SWIPES™ deployed and tested by California State University, Channel Islands during a Capstone project "assessing and mitigating surface runoff pollution from campus" with Advanced Bio-SWIPES™ BMP under the direction of Environment Science professor Sean Anderson. WECK Laboratories in Los Angeles performed lab test analysis (available upon request).

** Leisenring, M., J. Clary, and P. Hobson. 2014. International Stormwater Best Management Practices (BMP) Database Pollutant Category Statistical Summary Report: Solids, Bacteria, Nutrients, and Metals.



Basket Retrofit

Modeular Retrofit

Infiltration Bio-Eco-Healer

TM Filter Reactor