PROPOSAL
FOR
STORM WATER MANAGEMENT TO 'LAVASA CITY'-PUNE

SUBMITTED BY:

GREEN APPLE ENVIRONMENTAL TECHNOLOGIES

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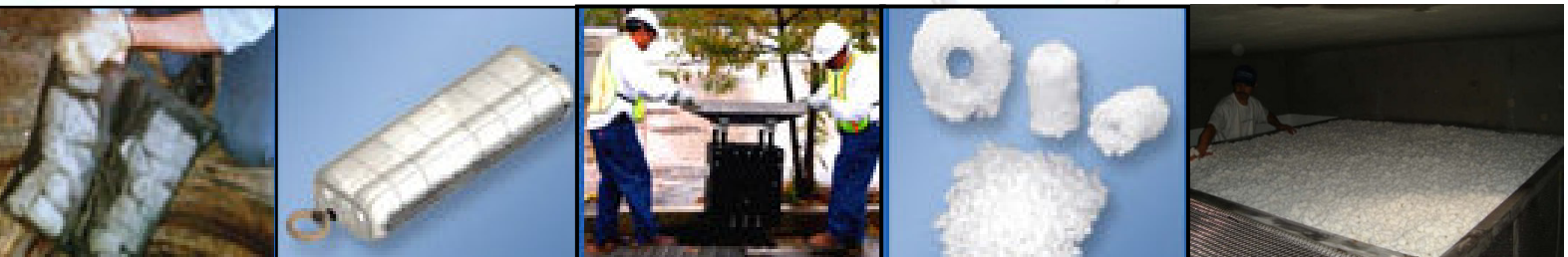

PROPOSAL FOR STORM WATER MANAGEMENT TO 'LAVASA CITY'

STORMWATER MANAGEMENT-NEED OF THE HOUR

Stormwater Runoff Pollution occurs every time rainwater flows across the ground and picks up contaminants. It occurs on farms or other agricultural sites, where the water carries away fertilizers, pesticides, and sediment from cropland or pastureland. It occurs during forestry operations (particularly along timber roads), where the water carries away sediment, and the nutrients and other materials associated with that sediment, from land which no longer has enough living vegetation to hold soil in place.

Apart from this runoff pollution also occurs from developed areas, where stormwater carries away a wide variety of contaminants as it runs across rooftops, roads, parking lots, Open grounds, construction sites, lawns, and other surfaces in our cities and suburbs. The oily sheen on rainwater in roadside gutters is but one common example of urban runoff pollution.

The United States Environmental Protection Agency (EPA) now considers pollution from all diffuse sources, including urban stormwater pollution, to be the most important source of contamination in nation's waters. While polluted runoff from agricultural sources may be an even more important source of water pollution than urban runoff, ***Urban Runoff*** is still a critical source of contamination, particularly for waters near cities and thus near most people.

The main reason why urban stormwater remains such an important contributor to water pollution is the fact that in most areas, stormwater receives no treatment before entering water bodies. The storm-sewer system merely collects the urban runoff and discharges it directly to the nearest river or lake.

Over the past 30 years, water pollution control efforts have focused primarily on certain process water discharges from facilities such as factories and sewage treatment plants, with less emphasis on diffuse sources. While these efforts have led to many water quality improvements, new efforts are now needed to address the remaining sources of water pollution, including urban runoff pollution.

CONSEQUENCES OF STORMWATER POLLUTION

- Harm to Aquatic Life and Coastal Shellfisheries
- Human Illness
- Impacts to Drinking Water Supply
- Aesthetic Losses such as Increased turbidity
- Flooding and Property Damage
- Stream bank and Streambed Erosion
- Siltation and Sedimentation
- Increased Water Temperature

Remarkably, studies have shown that stormwater alone can be almost as contaminated as these sewage/stormwater mixtures. Yet stormwater runoff remains to be regulated in most of the nation's populated areas.

GREEN APPLE ENVIRONMENTAL TECHNOLOGIES

We are dedicated to developing innovative clean water solutions to meet community and industrial needs. We develop Best Management Practice (BMP) equipment for nonpoint source pollution and storm water control, filters for storm drains and catch basins, and devices that capture oil from still or flowing water. Increasingly, commercial companies, industries and local municipalities have been using cost effective SMART SPONGE Filtration Systems at the entrance of the Storm drain-sewer systems, in ***vaults, filters*** and many other installations to **remove hydrocarbons** in stormwater runoff, to comply with National Pollutant Discharge Elimination System (NPDES) permit requirements. Smart Sponge® technology has been installed in over 13,000 locations across the world and has been improved with Smart Sponge® Plus, an intra-filter antimicrobial that **promotes and prolongs the effective and efficient functioning of the filter.**

Our products provide an effective solution to municipalities and other commercial and industrial entities seeking to control the quality of water and other fluids that run off roads and other paved surfaces during wet weather, cleaning or through direct spills. Our customers include Municipalities, State Agencies, Federal Agencies and other entities faced with beach closures and other health hazards of

bacteria-laden stormwater. Our intra-filter antimicrobial capability which promotes the effective and efficient functioning of the filter, clearly differentiates Smart Sponge® Plus products from competitive stormwater treatment devices and is engineered for use in outlet pipes, drainage vaults and other applications to treat massive amounts of water runoff.

The malleable nature of the Smart Sponge® material allows it to be formed into a variety of shapes for optimum effectiveness in a wide variety of contaminated water filtration applications.

PRODUCT LINE

Smart Sponge® has a unique molecular structure based on innovative polymer technologies that are chemically selective to hydrocarbons. Smart Sponge® media, when deployed in filtration mechanisms, removes hydrocarbons, trash, debris, sediment and other contaminants from water.

THE ULTRA-URBAN® FILTER

The Ultra-Urban® Filter with Smart Sponge® is an innovative low-cost BMP that helps meet NPDES requirements with effective filtration, efficient application, and moderate maintenance. It is a genuine water filter that ensures that the water flowing through the system is properly and completely treated. This solution is used to treat stormwater runoff for new or retrofitted sites by absorbing oil and grease and capturing trash and sediment, making it a truly comprehensive solution geared at removing key contaminants and pollutants from stormwater runoff. In addition, Smart Sponge® Plus incorporates an intra-filter antimicrobial to promote and prolong the effective and efficient functioning of the filter.

The Ultra-Urban® Filter is ideal for municipal, industrial, and construction applications ensuring compliance with stormwater regulations. The filter comes in two standard designs; one a modular unit geared toward curb inlet openings, and the other, a single unit designed for typical drop-in catch basin drains.

STORMWATER ALL-PURPOSE TREATMENT (SWAT) UNIT

The Stormwater All-Purpose Treatment (SWAT) Unit is a full turnkey solution designed to remove hydrocarbons from stormwater runoff with an antimicrobial to

promote and prolong the effective and efficient functioning of the filter. Typically installed in Vault applications at the middle or end of a pipe, the SWAT unit with Smart Sponge® Plus is fully scalable and offers a low maintenance, cost effective solution that requires no electricity or moving parts.

The SWAT unit utilizes the patented technology of Smart Sponge® Plus filtration and can be retrofitted into existing collection systems. It can also be easily included in new construction or redevelopment projects. Smart Sponge® Plus media features a unique polymer blend that is chemically selective to hydrocarbons and creates a permeable reactive barrier with

an antimicrobial to promote and prolong the effective and efficient functioning of the filter.

Due to the flexibility of the Smart Sponge® media, it can be easily adapted to either standard or custom applications.

TRASH AND DEBRIS GUARD

The Trash & Debris Guard is a pre-treatment and/or stand alone filtration device designed to reduce trash, sediment and debris from entering the storm drain. It can be used in conjunction with other BMP treatments such as catch basin inserts or vaults to effectively remove contaminants in stormwater runoff. This low cost, easy to install solution dramatically reduces

the maintenance of the filtration device train and requires no moving parts or hinge points. In addition, it is easily adaptable for either retrofit or new applications.

PASSIVE SKIMMER

The Passive Skimmer is designed to absorb and encapsulate hydrocarbons by floating directly on the water in catch basins, sumps, oil/water separators and marine fuelling stations. The Passive Skimmers are made of a proprietary blend of polymers, called Smart Sponge®, packaged in flexible mesh containers and are available in a variety of sizes. The non-leaching Smart Sponge® is chemically selective to hydrocarbons and able to transform liquid petroleum hydrocarbons into a manageable solid waste. Passive Skimmers also remove oil sheen.

LINE SKIMMER

Line Skimmers are designed to absorb and encapsulate hydrocarbons and oil in non-confined water flows. Line Skimmers are ideal for creating lines of hydrocarbon protection in areas such as ponds and streams as well as clarifying wells and ships in port. Line Skimmers employ the Smart Sponge® technology which allows water to pass through the product absorbing even sheen levels of hydrocarbons without inhibiting water flow. Line Skimmers are produced in a variety of combinations (singular, triple, or quadruple) and lengths (4' and 10').

BILGE SKIMMER

The Bilge Skimmer featuring the Smart Sponge® Technology is engineered and designed for eliminating the petroleum hydrocarbon contamination which normally occurs during the operations of the boat. The Bilge Skimmer will absorb the contaminant and allow the boater to discharge clean water from the bilge pump.

SMART PAK®

Smart Sponge® Smart Pak® is designed for use in new or existing vaults that experience oil and grease pollution accompanied by sediment and debris. Smart Pak® helps meet and/or exceed stormwater NPDES permit requirements of the federal Clean Water Act with effective filtration, absorption, life expectancy and maintenance costs. Smart Pak® products are constructed out of Smart Sponge® media which is a non hazardous, modular,

and can be specified for a new variety of applications.

BENEFITS OF SMART SPONGE OVER OTHER TECHNOLOGIES

Our Product uses a patented combination of petroleum derived polymers to create a filtration media that allows for several advantages to the environment:

- Effectively removes multiple contaminants, hydrocarbons, trash/debris and sediments.
- An intra-filter antimicrobial(when specified with Smart Sponge Plus) promotes and prolongs the effective and efficient functioning of the filter
- Absorbs rather than adsorbs water-borne hydrocarbons to prevent leaching or leaking back into the environment.
- Simpler and less expensive disposal due to classification as " non-hazardous waste"
- Low Maintenance
- Oil-Soaked product may be recycled as a waste-to-energy fuel source.

APPLICATION AREAS

A) Stormwater –

Our products provide an effective solution to municipalities and other commercial and industrial entities seeking to control the quality of water and other fluids that run off roads and other paved surfaces during wet weather, cleaning or through direct spills. Our customers include Municipalities, State Agencies, Federal Agencies and other entities faced with beach closures and other health hazards of bacteria-laden stormwater. Our intra-filter antimicrobial capability which promotes the effective and efficient functioning of the filter, clearly differentiates Smart Sponge® Plus products from competitive stormwater treatment devices and is engineered for use in outlet pipes, drainage vaults and other applications to treat massive amounts of water runoff. The malleable nature of the Smart Sponge® material allows it to be formed into a variety of shapes for optimum effectiveness in a wide variety of contaminated water filtration applications.

B) Gas Fuel Service Providers –

Operators of facilities that store, use, process, transfer, distribute or consume oil and oil products (including airports and military bases) have found our innovative solutions to be their product of choice. Smart Sponge proven oil spill containment system for use in oil spill clean-up, refuelling and maintenance provides a proactive approach for possible oil discharges and is compliant with Spill Prevention, Control and Countermeasure (SPCC). Smart Sponge® recovers and fully encapsulates recovered oil, resulting in a substantially more effective response that prevents absorbed oil from leaching.

Field and laboratories tests have confirmed the Smart Sponge® capability to absorb, depending on the type of oil contaminant, up to five times its own weight. It is also capable of removing low levels of oil from water, thereby successfully removing sheen. Once oil is absorbed, the Smart Sponge® transforms the pollutants into a stable solid for easy recycling, providing a closed-loop solution to water pollution. Smart Sponge® technology provides a cost-effective BMP with low installation and maintenance labour costs.

C) **Airports** –

Operators of facilities that store, use, process, transfer, distribute or consume oil and oil products (including airports and military bases) have found our innovative solutions to be their product of choice. Smart Sponge's proven oil spill containment system for use in oil spill clean-up, refuelling and maintenance provides a proactive approach for possible oil discharges and is compliant with Spill Prevention, Control and Countermeasure (SPCC).

D) **Building - Commercial/Residential** –

Increasingly, commercial and residential builders and hotels and condominium associations have been deploying Smart Sponge® solution for the treatment of liquid effluent retained in oil/water separators, discharged to surface water, or reprocessed by manufacturing companies and commercial entities in the normal course of business. Our customers include utilities, refineries, steel mills, gas stations, car washes and real estate developers.

E) **Marina** –

Smart Sponge® Technology is engineered and designed for eliminating the petroleum hydrocarbon contamination which normally occurs during boat operations. We have developed product solutions for the Marina industry that would absorb contaminants and allow boaters to discharge clean water from bilge pumps.

CASE STUDIES:

A) CITY OF NORWALK STORMWATER MANAGEMENT IMPROVEMENT PROJECT

"The Filter Project," as Norwalk, Connecticut's city officials call it, began as a natural outgrowth of the Long Island Soundkeeper's mission of protecting the Sound's ecosystem coupled with Norwalk's commitment to clean up local waterways. Hal Alvord, Director of Public Works in Norwalk, Connecticut, said that cleaning up polluted street runoff in storm water before it flows into the Long Island Sound was the highest priority of The Filter Project. The heart of this approximately $500,000 project involved fitting filtration systems to storm drains in south Norwalk to catch trash, debris, animal waste, hydrocarbons, oil, and grease before they enter the Sound.

The Filter Project is a part of Norwalk Public Work's stormwater management improvement program and involved fitting over 275 storm drains with high-technology filtration systems equipped with Smart Sponge® Plus. According to field tests, the project's filters destroyed a high percentage of bacteria, including E. coli and other fecal coliform. The average removal rate was over 75 percent and the maximum removal rate was 99.9 percent, considering the first cleaning of the 275 catch basins yielded over 7.4 tons of trash, debris, leaves, sediment, and sand – the weight of over six Ford Escorts. All this bacteria, trash, and debris would have entered the Sound's recreational waters if it hadn't been captured by the filters.

The filtration systems – Ultra Urban® Filters with Smart Sponge® Plus – are produced by the Arizona-based company, AbTech Industries, which holds the technology's patent.

B) WESTCHESTER COUNTY AIRPORT

Westchester County Airport is the third in the nation to be certified by the ISO 14001 Standard. The airport's ISO certified Airport Environmental Management System (AEMS) includes all activities at the airport, a 703-acre facility owned by Westchester County, providing corporate aviation, light general aviation, and commercial airline services with related aviation support facilities.

A significant part of the AEMS is the plan to protect waterways surrounding the airport from polluted runoff caused by chemicals such as fuel, oil, grease, and de-icing fluid. To minimize these potential environmental impacts, the county installed AbTech Industries' catch basin inserts in the critical storm drains. The program started in 2002 with 18 Ultra-Urban ® Filters, produced by AbTech Industries. Because of the success of this pilot program, there are 54 Ultra-Urban Filters in place today.

C) RHODE ISLAND'S SCARBOROUGH STATE PARK BEACH STORMWATER MANAGEMENT PROJECT

This stormwater management project was implemented to improve water quality at Scarborough State Park Beach, a popular recreation area that attracts over a half million people in the summer months. The beach is located in the coastal community of Narragansett, Washington County, Rhode Island, at the southern end of Narragansett Bay at Rhode Island Sound.

In 2003, Scarborough Beach closed six times because of high levels of contaminants. Following those closures, Rhode Island's Departments of Transportation, Environmental Management, and Health formed a team committed to remedy the hazard. In June 2004, Rhode Island Governor Don Carcieri officially launched the team project. The core of the solution involved diverting the runoff from Scarborough's stormwater outfalls through pipes containing Smart Sponge® Plus, an intra-filter antimicrobial filtration material developed by AbTech Industries to promote and prolong the effective and efficient functioning of the filter while it removes contaminants from the runoff.

****** Details of the Products, Specifications and Case Studies are given in Brochures attached herewith as Annexure.***

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