

SCD Probiotics®

Case Study Summary – SCD Probiotics® Technology used to control odor and improve water quality in the city sewage system of Cartagena, South America

Wastewater - Controlling odor and reducing bacterial load (CSS-026-2008)

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Industry:	Wastewater
Application:	SCD Probiotics Technology applied directly to the sewage system
Where:	Cartagena, Colombia, South America
When:	May – July 2008
Products*:	Secondary products made from SCD ProBio Balance™ Plus and SCD Bokashi Balls
SCD Customer:	OASIS Ambiental EU, SCD Probiotics® Licensee

Background

Due to foul odors in the area coming from the manholes, researchers tried to apply SCD Probiotics Technology expecting the odor to be reduced and water quality to be improved. After a series of product treatments to the sewage system, positive results were seen and goals of the project were achieved.

Introduction

The Cartagena tourist area faced foul odors coming from the public manholes of the urban sewage wastewater. This raised public health concerns especially during the rainy season when the manholes overflowed. Baseline measurements from the area indicated that parameters such as COD, BOD, and TSS were far higher than environmental regulation standards (see Table I).

Table I: Environmental Regulation Standards & Baseline Data

Parameter	Outflow Standard for Treated Water	Baseline Data May 8, 2009
Chemical Oxygen Demand (COD)	250-500 mg/L	703 mg/L
Biological Oxygen Demand (BOD)	110-220 mg/L	385 mg/L
Total Suspended Solids (TSS)	100- 200 mg/L	400 mg/L

The project concentrated on three geographic areas, served by one pumping station, with a pumping volume of ~5400 m³/day (6500 m³/day during the busy tourist season). The overall length of the sewage system was 21 km and the total retention time was 2.5 hours.



Objectives

The specific objectives of this trial are found below.

- To control odors in the sewage system and pumping stations in three targeted areas
- To reduce the levels of COD, BOD, and TSS
- To reduce Total Coliforms and Fecal Coliforms, improving outflow water quality

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Methodology

Probiotics used were a mixed culture of beneficial microorganisms without genetic manipulation, present in natural ecosystems, physiologically compatible with each other. When the microbes come in contact with organic matter, they accelerate the process of decomposition, without allowing putrefaction.

The microbial liquid was applied directly to the manholes of each targeted sector following a strict plan and methodology. In addition, SCD Bokashi Balls (solid microbial concentrate) were dropped in the manholes according to a strict plan throughout the trial period.

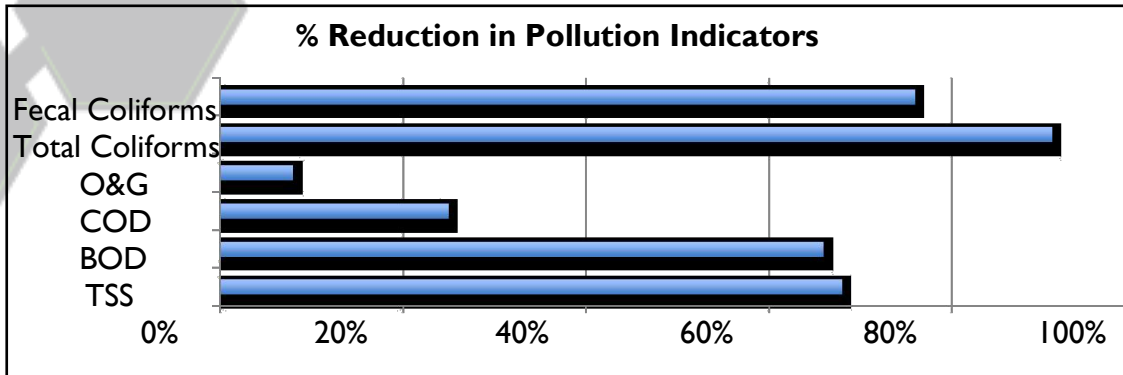
Samples were taken in the three pumping stations every week over the course of three months, and lab results were systematically recorded and analyzed to make adjustments on the application plan if necessary. All samples were taken and analyzed by the personnel of Acuacar/EPA and a private laboratory analyzed counter samples.

Results

The final results, agreed between the parties, are from the EBAR (pumping station) at a single site (Bocagrande). Parameters measured showed a high percentage of reduction. Total Suspended Solids (TSS) was reduced by 68%. Biological Oxygen Demand (BOD) was reduced by 66%. Chemical Oxygen Demand (COD) was reduced by 25%. Oils & Grease were reduced by 8%. The presence of foul odors in the interior and outside of the manholes showed remarkable reduction. The bacterial load also showed significant reductions: Total Coliforms by 91% and Fecal Coliforms by approximately 76% respectively. Significant results (Table II on the next page) were demonstrated and all goals of the project were achieved.



Table II: Results of the project – reduction in indicators



Conclusions

From the results of this trial, it can be concluded that SCD Probiotics Technology is efficient in improving water quality and controlling odor in urban sewage wastewater, characterized by the percentage reduction of coliforms, COD, BOD, and TSS measured in this study.

More information is available by emailing customerservice@SCDProbiotics.com.

