

SCD Probiotics®

Case Study Summary – Improving the Efficiency of Urban Wastewater Treatment Facility Using SCD Bio Klean™

Wastewater - Sludge reduction and cost savings (CSS-027-06)

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Industry: Wastewater (Sludge Reduction)
Product: Customized solution using SCD Bio Klean™
Application: Product added to wastewater sludge

Highlights

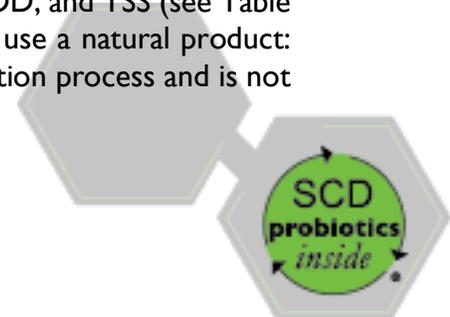
- Achieved significant cost reductions: saved \$50,000/annually in disposal costs and \$8,000/annually in environmental fees
- 25% reduction in overall sludge production
- Improvements of almost all wastewater characteristics

Introduction

At municipal wastewater treatment plants, raw municipal wastewater undergoes treatment to yield treated effluent—water that can be either returned to the water cycle or reused—and a concentrated stream of solid waste in liquid, called sludge. The sludge is then treated (as required for utilization or disposal), and additional effluent treatment may be needed as well to accommodate specific water reuse opportunities. The process of separating sludge from wastewater is a vital part of water treatment. The wastewater treatment plant in this study encountered an issue with its sludge production, creating the need to improve the efficiency of urban wastewater treatment facilities in the area.

Common parameters that present problems in wastewater operations include COD (chemical oxygen demand), BOD (biological oxygen demand), and TSS (total suspended solids). COD values indicate the amount of organic compounds in water. BOD indicates the amount of dissolved oxygen needed by aerobic biological organisms to break down the organic materials present in a given water sample, at a certain temperature over a specific time period. TSS is the dry weight of particles trapped by a filter.

These are all used to indicate water quality, where lower values mean good water quality. Initially, the parameters measured in the wastewater facility were high in COD, BOD, and TSS (see Table I on the next page). To address these problems, researchers decided to use a natural product: SCD BioKlean, which is made by SCD Probiotics using a natural fermentation process and is not chemically synthesized or genetically engineered.



Objectives

The specific objectives at the Wastewater Treatment Facility include:

1. Suppress application of coagulant agent
2. Reduce sludge production
3. Improve outflow parameters (see Table I below)
4. Realize financial savings from increased operational efficiencies

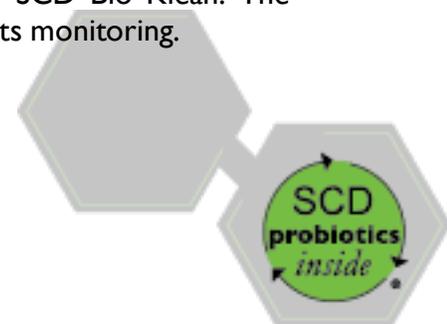
Table I: Mean Wastewater Characteristics Prior to SCD Probiotics Application

Daily inflow [m ³ /day]	Production [m ³ /day]			Inflow [mg/dm ³]				
	Screenings	Sand	Sludge	TSS	COD	BOD	P	N
8653	80.5	175	9006	394	1315	628	5.37	50.6
				Outflow [mg/dm ³]				
				TSS	COD	BOD	P	N
				52	76.6	13.2	1.18	8.56

Methodology

SCD Bio Klean was added to the sludge once it had been separated from the wastewater. A fraction of amended sludge was re-circulated into the general system to improve the characteristics of the outflow water.

This facility had an average daily inflow of 1500 m³, or 3,968,171 gallons/day, to be treated. The initial daily treatment dosage prescribed was 1:50,000 with 79 gallons of SCD Bio Klean applied as the “shock treatment.” The shock dosage was gradually reduced to the current daily maintenance treatment application rate of 1:165,000 with 24 gallons of SCD Bio Klean. The maintenance treatment dosage was prescribed based on daily inflow results monitoring.



Results

All goals were achieved. Significant improvement in all outflow parameters (except Nitrogen content) occurred after the SCD Bio Klean applications, as shown in Table II.

In addition, the following benefits were achieved, which positively impact both the operational and financial performance of the wastewater treatment facility: Page | 3

1. Elimination of PIX application (a coagulation agent)
2. A 25% reduction in overall sludge production
3. Cost reductions:
 - \$50,000 per year savings from disposal cost reduction
 - \$8,000 per year savings on environmental fees caused by decreased water contamination

Table II: Mean Wastewater Characteristics After SCD Bio Klean Application.

Daily inflow [m ³ /day]	Production [m ³ /day]			Inflow [mg/dm ³]				
	Screenings	Sand	Sludge	TSS	COD	BOD	P	N
9625	65	133	7955.5	219	822	341	6.82	44.2
				Outflow [mg/dm ³]				
				TSS	COD	BOD	P	N
				15	64.5	7.37	0.69	9.55

Conclusions

The trial showed improvements on almost all wastewater characteristics measured in the study. This implies that production is now more efficient at this operation, with a daily investment of \$182/day or \$0.00005 per gallon of wastewater to be treated. In different locations with different wastewater facility designs, results may vary—however in general, most parameters involved in wastewater facility should provide positive results.

