

## Reducing Foam and Improving SVI using BIO GENESIS®

## CASE STUDY

Location: Arizona Municipal Wastewater Treatment Facility

### Resolution

At the time BIO GENESIS® was added, the SVI at the wastewater treatment plant had been steadily increasing over the year and peaked at 450 mg/L. Typical SVI at this facility ranges between 100 and 200 mg/L; with the addition of Bio Genesis® the typical SVI was attained in less than 10 days, measuring under 200 mg/L. The foaming issues caused by filamentous bacteria were also eliminated within 10 days after dosing of the product. Settability tests were also performed: at the 5-minute test mark the material had reduced from 900 mL to 750 mL, and after the 30-minute mark the test readings had reduced from 600 mL (prior to dosing) to 400 mL after the 10 days. The superintendent was very pleased with the results and continued to use the product through the heavy organic-loading season to improve system performance.

### Product Information

Probiotic Solutions® BIO GENESIS® is a formulation of nutrients, organic acids, natural biological stimulants, and energy systems that balance the natural microbial ecosystem to increase bio-oxidation capacity in activated sludge systems. BIO GENESIS® reduces operating costs by lowering BOD/COD and improving settleability while controlling filamentous bacteria and reducing FOG.

### Problem

A municipal wastewater treatment facility in Arizona uses an activated sludge system with 4 oxidation ditches to treat approximately 9 million gallons per day. The system frequently experiences intermittent foaming and settling issues. The operator was looking for a solution to the foaming and settling issues that would also provide operational stability throughout the year.

### Solution

An analysis was conducted of the existing data that the plant normally tracked and recorded for use with the permit-reporting requirements. Additionally, a review of operator concerns and operational parameters was conducted and included, but was not limited to, the following: sludge generation/accumulation, BOD percentage removal, settling issues, hydraulic loading issues (design versus actual loading), and BOD loading and foaming issues.

Once the analysis was conducted, it was found that the wastewater had a history of issues with nutrient deficiency as well as foaming and settling issues. A dosing program of BIO GENESIS® was developed using an initial shock dose of 3 parts per million (ppm) that was then optimized by using a multi-phase approach to lower the dose to approximately 1.5 ppm.

The ultimate goal was to bioremediate the problems by improving the activity and diversity of the microbiology to reduce the foam and improve the SVI, then establish the maintenance dose to ensure that the resolved issues do not return to the facility.



Figure 1. Foaming Before Dosing With BIO GENESIS®



Figure 2. Foaming After Dosing With BIO GENESIS®

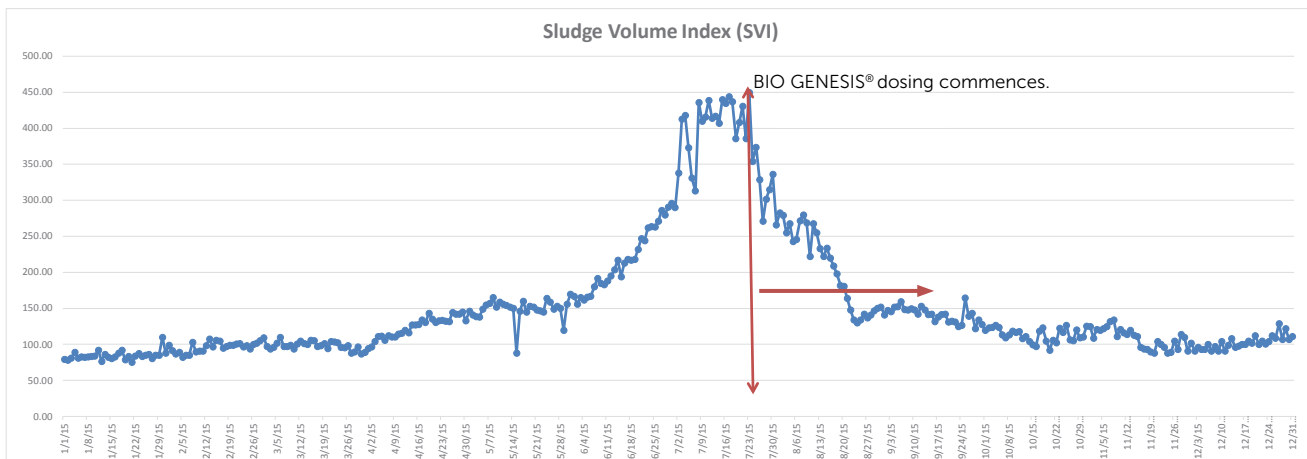


Figure 3. SVI Before and After dosing with BIO GENESIS®

## Probiotic Solutions® Product Information

For many years wastewater operators have continued to use BIO GENESIS® to cut sludge hauling costs.

### Operators Using BIO GENESIS® Report:

- 1) **Reduced foam caused by filamentous bacteria.** BIO GENESIS® diversifies beneficial bacteria colonies to out compete filamentous bacteria.
- 2) **Improved settling to improve turbidity and water quality.** BIO GENESIS® improves the bacterial colonies, increasing natural flocculation to deliver a clearer effluent.
- 3) **Reduced sludge generation.** BIO GENESIS® stimulates the existing bacteria, reducing the quantity of bacteria required to process the wastewater.

**BIO GENESIS® enhances endogenous respiration for faster and more complete oxidation of sludge into carbon dioxide and water.**



## Our Probiotic Solutions® Products

are Highly Efficient and Effective Due to Our Unique Delivery System

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