



# Case Studies & Technical Review

## INTRODUCTION

The accumulation of organic solids can lead to the odors and loss of storage capacity within sewage treatment systems/lagoons. Periodic dredging of solids requires expensive equipment, and results in high labor and disposal costs.

Shactivate™ aids in the decomposition of organic matter by stimulating resident microbial communities present in wastewater; and is effective in reducing both the volume of organic solids and the odors associated with wastewater collection and treatment systems.

While formulated to treat conditions found in municipal sewage, Shactivate™ is also used in the treatment of septic tanks, portable/outdoor toilets, RV's, grease traps, etc.

## CASE STUDIES

Shactivate™ has been proven effective in the reduction of organic solids and odors in waste water. The following studies illustrate the effects of Shactivate™ within municipal treatment systems.

### MUNICIPAL LAGOONS - SOLIDS REDUCTION STUDIES

In a series of trials conducted at various wastewater treatment facilities, reductions in accumulated organic solids were monitored over varied lengths of time following Shactivate™ treatment.

The following results were observed during the trials:

- Up to 80% reduction in organic solids accumulation (Fig. 1)

- An average 55% (2.4 ft) solids reduction in all trials conducted (Fig. 1 and Fig. 2)

Figure 1 details the monitoring period length and the percentage reduction in organic solids observed over that time frame.

Figure 2 details the reductions in depth of organic solids as determined by probe sampling, as well as monitoring period length.

Variable monitoring periods (shown on graphs in brackets) were chosen to determine the potential for long-term results and capacity volume improvements.

Figure 1: Solids reduction by percentage following Shactivate™ treatment

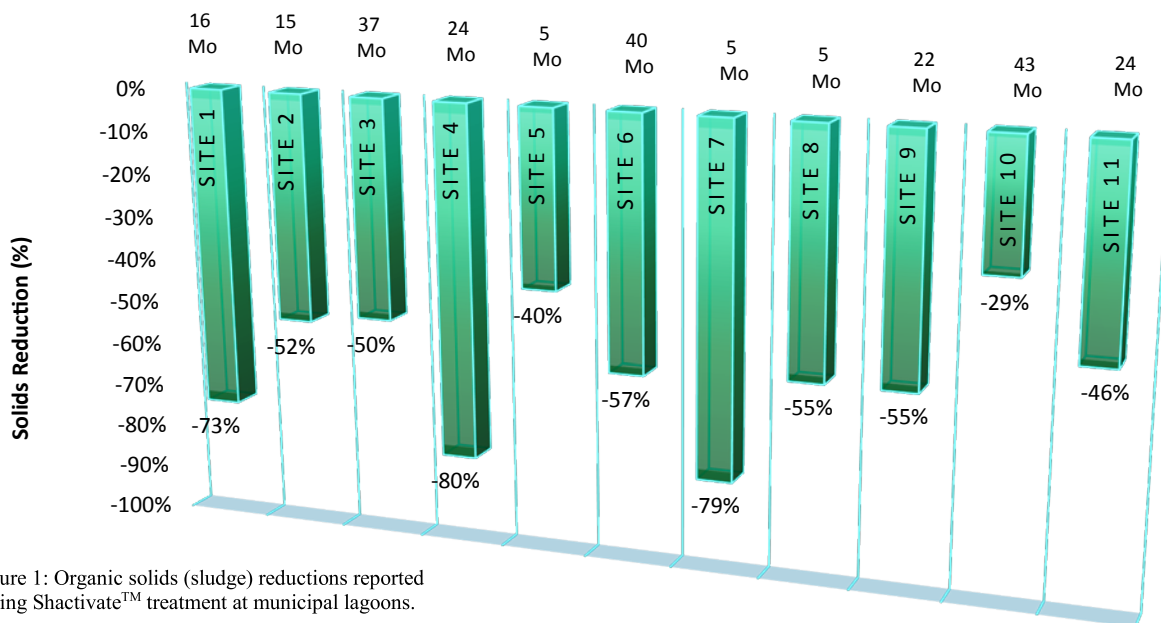
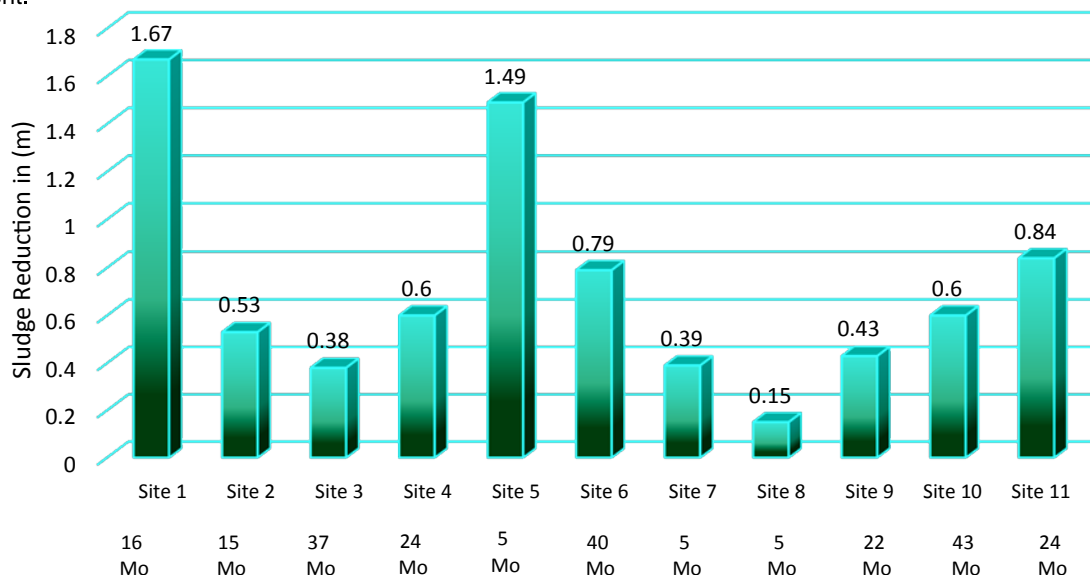


Figure 1: Organic solids (sludge) reductions reported during Shactivate™ treatment at municipal lagoons.

Figure 2: Depth of solids reduction (m) following Shactivate™ treatment.



### SEWAGE COLLECTION LINE STUDY

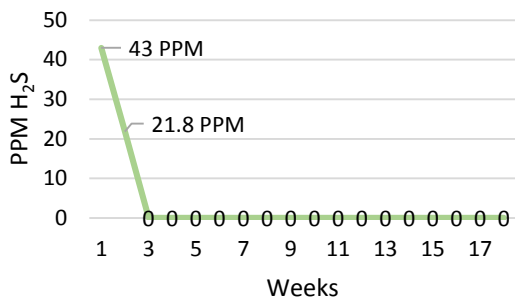
In Abbotsford, BC, sewage collection lines were treated with Shactivate™ and monitored over approximately 4 months.

Shactivate™ was applied to a portion of the sewage system containing 9 manhole stations, a sump station, and a reload yard.

The following results were observed within the sewage collection system by municipal staff with standard gas detection monitors:

- Prior to treatment, H<sub>2</sub>S concentrations as high as 42 ppm, and an average of 21.8 ppm were recorded at sample locations (Fig.3)
- Following treatment, concentrations of 0 ppm were recorded at all sample locations (Fig.3)

Figure 3: Average hydrogen sulfide values prior to Shactivate™ treatment and following treatment.



### HOW SHACTIVATE™ WORKS

Shactivate™ is composed of liquefied oxidized lignite, and contains a high quality source of humic acids. The benefits of humic acid treatments, being numerous, include the stimulation of microbial communities. Shactivate™ encourages the decomposition of organic matter by stimulating beneficial resident microbial communities present in wastewater. Stimulation of these microbial communities results in digestion of organic solids at optimum rates, thereby reducing odors and increasing volume capacity within wastewater storage lagoons.

Humic substances also play a role in the detoxification of certain compounds that are inhibitory to microbial populations. This mechanism encourages the growth of beneficial microbial communities responsible for decomposition.

### SHACTIVATE™ BENEFITS

- Safe and easy to use.
- Reduces organic solids and offensive odors
- Creates an environment that stimulates microbial activity and encourages the decomposition of organic material.
- Improves effluent quality with continued use.

For additional information, please contact SHAC Solutions Inc. at 1-888-533-4446 or visit us at [www.shac.ca](http://www.shac.ca)