SciCorp™ BIOLOGIC™

PRODUCT DATA SHEET

BIOLOGIC™ SR2

For use in Municipal Wastewater Treatment

PRODUCT DESCRIPTION

SciCorp BIOLOGIC™ SR2 is a proprietary plant-based blend of organic micronutrients that stimulates specific aerobic, anaerobic, and facultative bacteria species. The product enables the rapid elimination of odors and reduction of biosolids. BIOLOGIC™ SR2 does not contain bacteria or enzymes.

WASTEWATER APPLICATIONS

For use in in municipal/domestic wastewater treatment applications including Activated Sludge, SBRs, BNRs, RBCs, Trickling Filters, and Aerated/Facultative/Anaerobic Lagoons

BENEFITS

- Rapidly eliminates odors: reduces formation of H2S, ammonia and mercaptans and eliminates complaints from workers and neighbours
- Accelerates the breakdown of biosolids and reduces operating costs related to aeration and sludge handling and disposal by up to 25%
- Reduces fats, oils and grease and scum
- Increases activity rates of bacteria and biological treatment efficiency
- Significantly reduces accumulated organic sediment/sludge in lagoons
- Increased removal efficiency and reduces effluent concentrations for BOD, COD, and P

APPLICATION PROCEDURE

- Apply product at a continuous rate of between 1- 50 ppm based on wastewater flow at the headworks of the system. Dose rate is based on organic load and needs to be confirmed by a SciCiorp engineer. (Product is typically metered into the system using a low flow liquid pump)
- For immediate odor control a shock dose may be recommended for lagoons/holding tanks where the product is diluted in water and sprayed over the surface of the lagoon/tank.

PACKAGING

Product is sold in 5-gallon (20 L) pails, 55-gallon (210 L) drums or 265-gallon (1000 L) totes

FEATURES

Non-toxic, environmentally friendly, and safe around people/animals (no special handling required)

KEY PRODUCT CHARACTERISTICS/PROPERTIES (see SDS for more details)	
Physical state:	Liquid (store at temps between 40°F – 120°F)
pH:	3.0 – 4.0
Solubility in water:	99.9% in water
Stability/Shelf Life:	2 Years
Specific Gravity:	1:11 @ 72°F

COMPOSITION

Contains active ingredients consisting of proprietary plant extracts, micro-nutrients, and minerals. Product is UL ECOLOGO® certified. There are no known chronic hazards associated with this product

SCICORP International Corp
13-3300 Ridgeway Drive, Mississauga,
ON Canada L5L 5Z9
www.scicorp.net

PROPOSAL

To: **Town of Cortland Aerated Lagoon**

For: **Odor Control Phosphorus Reduction, Sludge Reduction and Overall Operational Improvement – in 4 Cell Aerated Lagoon Facility**

Date: October 19, 2023

From: **SciCorp International Corp.**

This is a proposal from **SciCorp International Corp. (SciCorp**) to provide a solution to reduce odor, if any, reduce phosphorus in effluent, reduce sludge inventory and improve effluent quality.

This proposal recommends the use of a liquid micro-nutrient product **(BIOLOGIC™ SR2)** to significantly reduce odors, reduce biosolids reduce phosphorus and improve performance in all aspects of the lagoon operation. This proposal is based on the information provided in the **Scicorp** questionnaire provided by Joel Summerville.

1.0 BIOLOGIC™ SR2

(BIOLOGIC™ SR2) is a product produced by **SciCorp International Corp.** consisting of plant-based organic micronutrients that have been demonstrated to stimulate most types of bacteria. The technology has been used worldwide to eliminate odors in operating plants and improve performance. **(BIOLOGIC™ SR2)** has been effectively applied at WWTPs that

range in size from high capacity municipal and industrial plants to very small, low flow lagoon facilities.

(BIOLOGIC™ SR2) has also been demonstrated to significantly reduce generation of hydrogen sulfide and other odor or gases by sulfur reducing bacteria present in sludge and organic waste. The micronutrients create conditions that allow aerobic/anaerobic bacteria to outcompete hydrogen sulfide producers for available carbon. **BIOLOGIC™ SR2** will reduce biosolids generation, and/or inventory energy consumption for aeration if applicable.

The product also facilitates the biological uptake of phosphorus in wastewater treatment.

Further information regarding how **(BIOLOGIC™ SR2)** works to improve wastewater treatment and reduce overall operating costs related to odor control, energy consumption and reduced bio solids generation is available upon request.

2.0 WASTEWATER TREATMENT FACILITY CONFIGURATION

2.1 General

It is our understanding that the system is configured as follows:

The raw incoming wastewater to the facility is pumped to the aerated lagoon via a lift station. Treatment consists of four cells operated in series with three aerated cells and one storage cell.

2.2 Lagoon

- Total lagoon volume – 285,000,000 gallons

2.3 Hydraulic Retention Time

- Total Retention – 300 days

2.4 Aeration System

- One 75 Hp Blower with 195 aerators

2.5 Sludge Content

- Cell 1 - approximately 1 ft

3.0 PLANT DATA

The wastewater data for the plant is summarized as follows:

3.1 Influent Quality

- Average Daily Flow – 300,000 gal /day
- Average BOD – 200 mg/l (assumed)
- Average TSS – 100 mg/l (assumed)
- Temperature – 4/20°C
- Average Phosphorus – 3-5 mg/l

3.2 Effluent Discharge

- Continuous discharge
- Effluent is filtered in disc filter and is disinfected using UV system.

3.3 Effluent Quality

- Average BOD – 5 mg/l estimated.
- Average TSS – 5 mg/l estimated.
- Average Phosphorus – 2-3 mg/l
- Discharge phosphorus limit – 1 mg/l

4.0 CURRENT TREATMENT CHALLENGES

- Phosphorus removal to achieve regulator's limit.
- Some sludge accumulation in Cell 1 and,
- Occasional higher ammonia levels in effluent

5.0 ANTICIPATED BENEFITS

5.1 Odor, if any will be significantly reduced from pumping station and treatment cells.

5.2 Sludge volume accumulated in Cell 1 and 2 will be significantly reduced over a 6 – 9-month period.

5.3 Floating sludge and scum will disappear from Cell 1 and 2

5.4 We estimate that phosphorus concentrated in treated effluent will reduce to anticipated level below 1 mg/l

5.5 Effluent quality with respect to TSS/BOD/NH_3 will improve.

5.6 Odors and grease accumulation in lift station will dissipate.

5.7 Variable speed of blower could be reduced by up to 25%.

6.0 BIOLOGIC SR2 APPLICATION RATE & METHOD

6.1 Daily Dosage in Lift Station

SciCorp recommends a **BIOLOGIC™** SR2 application rate of 2 gal /day. The product can be applied using a small peristaltic pump at the lift station.

6.2 Shock Dosage for Phosphorus Removal in Cell 1, 2, 3

- Initial shock dosage – 264 gallons
- Repeat shock dosage of 264 gal every 4-months for Cell 1, 2, 3 during first year, if needed
- Total initial volume of shock dosage – 264 gal

7.0 APPLICATION LOCATIONS

SciCorp recommends that the following application protocol be used at the Lagoons:

7.1 100% of daily dosage added at lift station.

7.2 Cell 1,2,3 - Initial shock treatment by surface spray over lagoon surface diluted 1:50.

8.0 BIOLOGIC™ SR2 PRICE PROPOSAL

- **Lift Station** Daily Dosage - one tote (264 gal) – 132 days of treatment
- **Shock Dosage** Initial shock treatment – one tote (264 gal)
- Suggested Order -Initial Shock dosage plus 4-month supply for lift station.

  Product volume = 2 Totes @ 264 gal = 528 gal

- Cost of initial order 528 gal @ $49.00 = $ 25,872.00
- Shipping Cost estimated @ 750.00
- Total Proposal Cost estimated $ 26,622.00

SciCorp provides ongoing value-added services to all our clients through ongoing advice and contact with our wastewater engineers and a support staff.

Please call us at your convenience to discuss next steps with respect to this proposal.

Best Regards,

Derk Z. Maat M.Eng., P.Eng
Chief Executive Officer
SciCorp International Corp.
www.SciCorp.net