

# BioSpikes® 5000

## Sludge survey

- Establish the surface area and dimensions of the lagoon
- A grid system should be used to located sludge measuring points in order to ensure repeat measurements occur in the same location. Stakes on the lagoon perimeter or a GPS can be used for this
- The number of measurements is dependent on the size of the treated area, time available for sampling, and accessibility
- Sludge levels are usually measured using a Sludge Judge™. This measures the distance from the bottom of the lagoon to the top of the sludge layer.
- If a Sludge Judge cannot be used, the depth to the sludge can be used as a benchmark. Provided the water level is relatively static, this can be a measurement from the surface of the water to the top of the sludge layer. This can be accomplished using a variety of techniques including:
  - Disk-on-rope method
  - PVC “T”
  - Solids interface meter
- The total lagoon depth can be determined by probing with a wooden stick or metal pipe with length calibrations
- From the depth of sludge, the sludge volume can be calculated. Sludge volume should be determined prior to inoculation with BioSpikes.
- Repeat measurements should be taken 30 to 90 days after inoculation to determine effectiveness of the treatment

## Operating data

Additional operating data are useful to help establish a solids balance in the lagoon. These data include:

- Influent and effluent solids, including TSS and TS
- Historical data on sludge accumulation rates
- Dredging history, including dates and amounts of sludge removed
- Temperature
- Influent and effluent flow rates after inoculation
- BOD and/or COD loading and effluent concentrations

---

### About Novozymes

Novozymes is the world leader in biological solutions. Together with customers, partners and the global community, we improve industrial performance while preserving the planet's resources and helping build better lives. As the world's largest provider of enzyme and microbial technologies, our bioinnovation enables higher agricultural yields, low-temperature washing, energy-efficient production, renewable fuel and many other benefits that we rely on today and in the future. We call it Rethink Tomorrow.

### Novozymes Biologicals, Inc

5400 Corporate Circle  
Salem, VA 24153-8300  
USA

### Novozymes A/S

Krogshøjvej 36  
2880 Bagsvaerd  
Denmark