



WE SOLVE ODOR!

Control H₂S – Increase Biogas Production
Reduce Sludge Yield / Increase Capacity / Control Foam in Your Digester



SLUDGE & FOODWASTE

ANAEROBIC DIGESTION BREAKTHROUGH!



Springfield Missouri Municipal WWTP operates a three-stage anaerobic digester system that receives 250,000 gallons of sludge from their 45 MGD WWTP and 20,000–36,000 gallons of food waste per day. Biogas generated by the digesters is used to generate electricity for the WWTP and heat for the digesters.

The Challenge/Problem

Recent challenges faced by plant operators include:

- Overloaded anaerobic digesters
- High foam layers (up to 12ft thick in some digesters) limiting capacity and throughput
- High H₂S content in biogas
- Moderate VS destruction efficiency due to FOG load and overloading of system
- High cost for H₂S control in sludge during processing and disposal
- Insufficient biogas flow to offset natural gas use
- High ammonia levels in digesters



SciCorp Plan & Implementation

SciCorp anaerobic digestion specialist engineers met with Springfield plant management staff and reviewed plant performance data and operation challenges faced by operators.

SciCorp engineers recommended a 3-month trial to treat the entire anaerobic digester system. They recommended a daily dose of 40 gal/day of **BIOLOGIC™ SR2** to be added to the acidification hydrolysis anaerobic reactor that would feed 4 primary digesters which then feed into one polishing digester.

The plant management staff agreed to shared financial risk approach to demonstrate and verify the benefits of using **BIOLOGIC™ SR2**.

Success

Within the time frame of the trial:

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| H ₂ S content in biogas was reduced by 55% | Foam layers were reduced to less than 12 inches from 12ft | Biogas production per kg VS feed to digesters increased by 30% + | Need for supplementary natural gas was eliminated |
| Ammonia levels dropped 12% | VS destruction efficiency increased by more than 10% | H ₂ S in digested cake decreased significantly | Need for ferric chloride potentially eliminated |

Other benefits realized:

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| Potential for increasing organic load to digesters | Sludge yield (kg/TS / kg BOD + TSS influent from WWTP) decreased by 25 – 30% due to recirculation of centrate containing BIOLOGIC™ SR2 to headworks of plant thereby reducing sludge generation from aerobic plant | Sludge mass requiring processing disposal decreased 25% |
| Odor issues decreased significantly from digester system, sludge processing and general plant operations | | Use of BIOLOGIC™ SR2 demonstrated net positive cost benefit for plant operations |



Reduction in H₂S



Reduction in odor complaints



Reduction of foam



Increase in biogas production kg VS



Reduction in sludge generation

Problems Avoided

- Shut down of digesters to remove foam
- Additional cost for biogas scrubbing
- Supplementation of natural gas to provide power for WWTP operations
- Ferric addition to sludge to control odor and struvite's
- Limiting intake of food waste due to limitation in anaerobic system capacity
- Odor complaints related to digester and sludge processing disposal operations
- Corrosion to piping and equipment
- Higher chemical costs due to price escalations
- Increasing sludge transport and tipping fees

WWW.SCI-CORP.NET

Contact our Engineers:

1-800-897-2053 contact@scicorp.net

