

Landfill and Leachate Treatment

Bioaugmentation in Solid Waste Management with BiOWiSH™ Odor yields increased cell compaction and lower leachate loading in Barranquilla, Colombia.

Background

Landfilling remains the most common method of disposal for solid waste in urban areas. However, the environmental impact generated by these operations has always been a major issue with surrounding communities. Restrictive legislation and “not-in-my-back-yard” (NIMBY) local action groups have made the procurement of new landfill sites almost impossible around most urban areas.

Interaseo S.A. E.S.P provides solid waste management services across 14 municipalities in Colombia and several more in Ecuador, Panamá and Perú. In the last 18 months, their El Clavo operation in Palmar de Varela has grown from receiving an average 600 metric tons a day to 1000 metric tons a day from different areas of the City of Barranquilla’s metropolitan area.

Interaseo S.A. E.S.P has been using BiOWiSH™ Odor (at a rate of 3g per metric ton of solid waste) as an odor-management solution for more than three years and have achieved sustainable odor abatement on their active cells while reducing the presence of flies and birds.

After several observations of increased compaction on their cells, they decided to run a pilot study to accurately quantify the effects of dosing BiOWiSH™ Odor on their cell density.

Solution

In January 2014, Interaseo started a pilot program to quantify the effect of BiOWiSH™ Odor on cell compaction and leachate organic loading.

Two separate cells (control and treated) containing more than 700 metric tons of solid waste were built and monitored over a three-month period.

BiOWiSH™ Odor

Benefits

- Fast acting
- Effective on a wide range of volatile organic compounds (VOC)
- Removes rather than masks odors
- Cost effective
- Long residual period
- 100% natural and non-toxic
- Safe for people

Available Sizes

- 3.5oz/100g
- 2.2lb/1kg
- 11lb/5kg
- packet of 8 filter bags

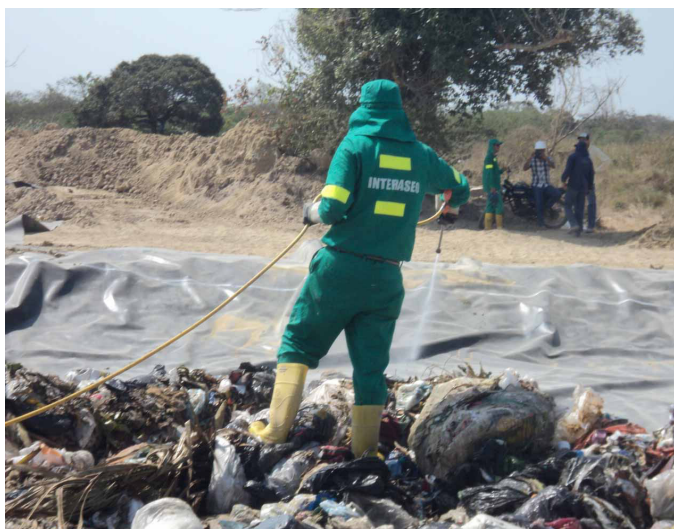




Equal distribution of material from 28 collection routes was used to fill both cells and guarantee comparable material composition. Separate leachate containment ponds were dug to sample each cell individually.



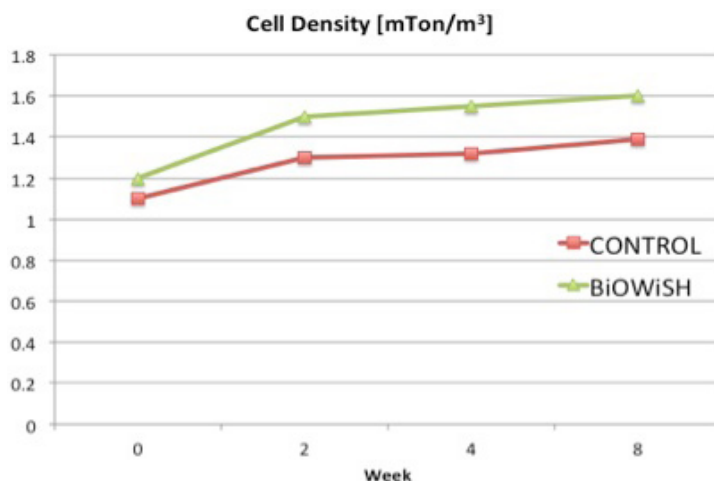
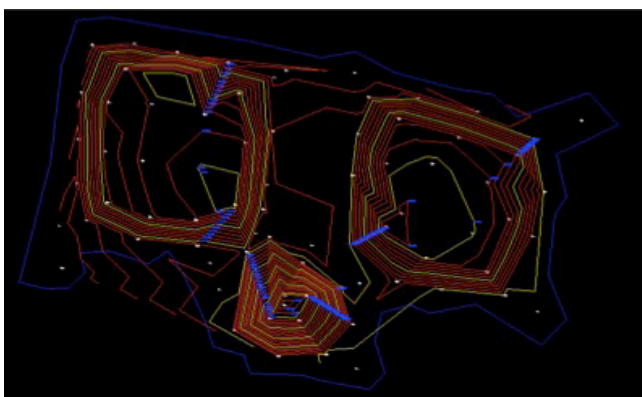
The BiOWISH™ cell was sprayed with 3 g/Ton of active solution. Both cells were compacted and covered with geomembrane.





Results

Detailed topographic mapping after 8 weeks revealed that the cell treated with BiOWiSH™ Odor achieved 7% higher compaction.



Leachate analysis revealed remarkable differences in organic loading and suspended solids:

Parameter	Control	BiOWiSH™	% Difference
BOD mg/L	58.350	41.850	28.3
COD mg/L	132.680	95.410	28.1
TSS mg/L	30.200	11.330	62.5
TN mg/L	2.817	1.350	52.1

Conclusion

The use of BiOWiSH™ Odor to accelerate biological degradation in solid waste management enabled this Colombian company to provide effective odor abatement and vector elimination with a natural and environmentally friendly product. Moreover, this trial allowed Interaseo to quantify the benefits they had been observing in cell compaction and leachate strength.

Mr. Jesús Ordosgoitia, Operational Manager for EL Clavo, explained that the benefits obtained for compaction alone represent such a high return on investment (considering the low dose of product used), that Interaseo determined to expand the use of BiOWiSH™ Odor to their Panama operations as well as many of their Colombian sites.



Contacts

BiOWiSH Technologies

Tel: +1 312 572 6700

Fax: +1 312 572 6710

Web: www.biowishtech.com

Email: wastewater@biowishtech.com

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www.biowishtech.com

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