

# Veolia Korea e-Newsletter

Vol. 13 - October 2015

## The future of landfill: a major environmental challenge



With more than 160 years of experience in water management and especially 70 years of experience in water treatment engineering, Veolia had also more than 150 years of experience in the waste management. By joining this two expertise, **Veolia is able to find the perfect balance between specific local constraints and your environmental issues to help you choose landfill treatment process appropriate to your needs.**

If Veolia's approach is to minimize the amount of waste that ends up in landfill by preliminary treatment to optimize reuse, recycling and valorization, unfortunately some waste are not technically or economically suitable with these process and must be always treated by landfilling.

**Transforming these wastes into valuable resources wherever possible and limiting as possible the environmental impact of such facilities is one of the know-how of Veolia.** The company provides a range of services, **from collecting business and municipal waste to recycling and processing**, and the generation of green energy from waste. Veolia operate landfill sites for the disposal of waste from which no further value can be extracted.

### Veolia's offer

- **The design and construction of the landfill site**
- **The operation and maintenance of the site:** waste landfilling, environmental management & energy recovery
- **Closure and after-care of the site:** equipment management, effluent treatments, biogas valorization & landscaping

#### Design & Build

- Authorization
- Hydrological & Geological Studies
- Environmental Studies
- Land preparation: excavation, backfilling
- Cells construction

#### Operation

- Operator safety
- Security of populations
- Protection & Environmental Monitoring
- Leachate treatment
- Biogas collection
- Biogas upgrading

#### After-care

- Landscaping
- Capture & biogas valorization
- Leachate treatment

### Veolia's high experience and large references

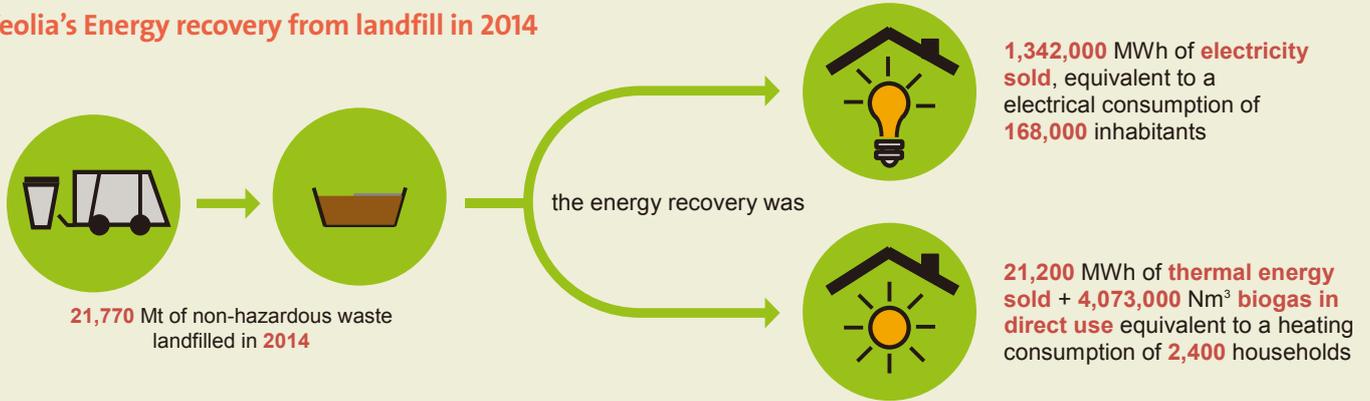


## An energy production approach

### Objectives:

- **Optimize the quantities and quality of biogas produced** through new operation methods (horizontal drain placement for improving cell filling, bioreactor, and regulation in terms of gas withdrawal, etc.)
- **Recycle all biogas produced** at the landfill and **diversify the recycling methods for this biogas**.

### Veolia's Energy recovery from landfill in 2014



## References

### Ti Tree, Australia

- Annual tonnage: 517,000t/y
- Area: 30 ha
- First tonnage in 2003
- Waste: municipal solid waste, commercial & industrial, inert, hazardous waste
- Biogas valorization: electricity
- Leachate treatment: pond for natural evaporation



### Green Valley, Hong Kong

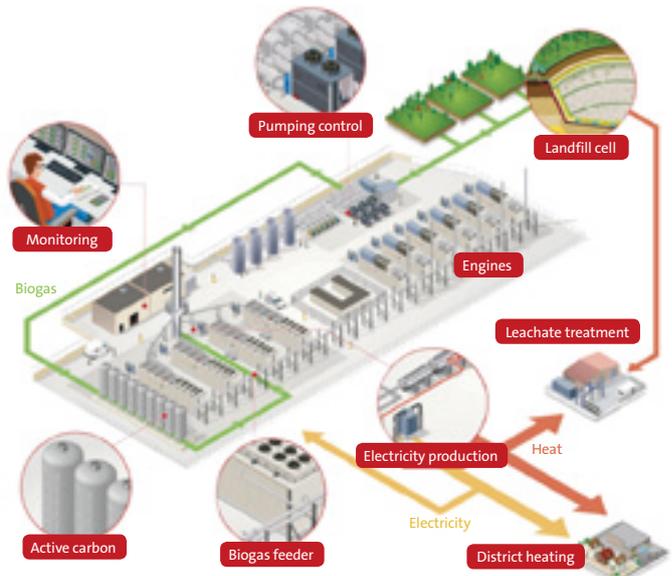
- Annual tonnage: 1,646,000 t/y
- First tonnage in 1993
- Waste: municipal solid waste, commercial & industrial, inert, hazardous waste
- Biogas valorization: heat, electricity
- Leachate treatment: biological and physical-chemical treatment



### Plessis-Gassot, France

#### Electrical production e.g.: Biogas valorization plant with engines - Electr'od

The landfill of Plessis-Gassot (FR), treats 950,000 tonnes of residual waste that can not be recycled. The Electr'od (for «electrical origin waste») facilities used to produce energy from biogas collected annually and deliver 130 GWh, which is equivalent to the electricity consumption of 41,200 households (excluding heating).



Contact: [hans.jeong@veolia.com](mailto:hans.jeong@veolia.com)

## Veolia, major upgrade of SIAAP's Wastewater pretreatment plant

Until 2023, Veolia will be involved in the transformation of the Syndicat Interdépartemental d'Assainissement de l'Agglomération Parisienne (SIAAP, Greater Paris Sanitation Authority) wastewater plant in Clichy - the point at which wastewater in the Ile-de-France converges.

One of consortium company, Veolia has been selected by the SIAAP to modernize its plant in Clichy and build a new pre-treatment unit. This project, named "Avant Seine", will be able to cope with the increasing volume of wastewater in the Ile-de-France region. **The installation will be renovated (pre-treatment unit and pumping station) and capacity will be increased to treat 35m<sup>3</sup> of wastewater per second** as against 20m<sup>3</sup> currently.



### Technology and performance in the service of the environment

The new pre-treatment units (for screening and degritting) are intended to ensure reliable operation, regardless of the context. Automated grapples and compactors suitable for large waste will be used. Grit washers will ensure the removal of organic matter from sandy waste for recycling.

To ensure there are no unpleasant odors for residents in the area, or for the personnel operating the plant, Veolia will employ **AQUILAIR®** technology. Aiming to reduce the use of fossil fuels, photovoltaic panels and hot water solar collectors will be installed, supplemented by heat recovery from the wastewater using **Energido®** technology.

#### Key figures

- **316 million m<sup>3</sup>** wastewater treated in 2014
- **375,000 m<sup>3</sup>** deodorized air per hour
- A treatment capacity of **35 m<sup>3</sup> per second** when the work is finished

#### Project schedule

- **Duration: 96 months**
- **Project scope:** design, build studies for constructing the new installations and upgrading the existing facilities, commissioning and supervision during the observation and technical assistance period.

## Waste collection and recycling contracts in France



**Veolia strengthened its positions in waste collection and recycling in France as a result of renewing and winning numerous contracts.** It is now recognized as the benchmark producer of recycled raw materials and green energy.

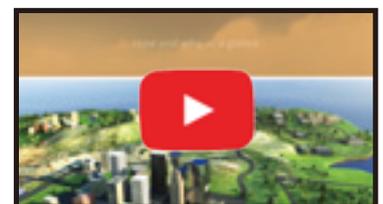
These included a **seven-year contract with Greater Limoges** for EUR 49 million, a **five-year contract with SIDMA Cœur Pays d'Auge** for EUR 24 million, a **five-year contract with Greater Quimper** for EUR 12 million and a **three-year contract with the Eure** joint association for the study and treatment of household waste for EUR 6 million. All these contracts come into effect in 2015.

The Syndicat Intercommunautaire du Littoral entrusted Veolia with a **12 year contract for operating the new energy from waste unit in Echillais (Poitou-Charentes)**, which in 2017 will produce 25 GWh of heat and 28 GWh of electricity.

The Syndicat Départemental pour l'Élimination des Déchets Ménagers de Haute Marne has also chosen Veolia to improve

and operate **the energy recycling plant in Chaumont for a period of 5 years.** Between 2018 and 2023, its capacity will increase from 21 to 47 GWh of heat per year, combining supplying a local heating network with electricity production.

Finally, the Communauté d'Agglomération de Cergy-Pontoise (Île-de-France) has entrusted Veolia with **the construction and operation of a waste disposal center, Recycl'Inn.** It is a new generation sorting area that is more efficient and convenient for users, and is equipped with a Recy'shop space dedicated to reusing and recycling of waste.



Click! Veolia's waste sorting and recycling video

## Energy from effluent in anaerobic wastewater treatment facility



**Veolia has been awarded the contract to design, build and operate South Africa's first Biobulk® Wastewater Treatment Facility.** The plant, owned by Distell in Stellenbosch, Western Cape, South Africa, will be ready for commissioning in March 2016.

Distell (Pty) Ltd has three operational sites in the Stellenbosch area - Adam Tas, Van Ryn and Bergkelder. Over the last four years, Distell has developed their Green Plan to install a common anaerobic water treatment facility that will lower the COD (chemical oxygen demand) load in the outfall to the Municipality, harvest the energy in the wastewater and lower the overall cost of effluent treatment.

**The selected Veolia Biobulk® CSTR (Continuous Stirred Tank Reactor) technology is a green technology and is a robust and proven process that treats industrial effluents with significant amounts of suspended solids.** It is the anaerobic equivalent to the

conventional activated sludge digestion system. **Following an anaerobic suspended bacteria treatment process, the majority of the soluble and solid organic content, measured in COD, is converted into biogas.** The Biobulk® can be operated as a once-through system or, alternately, biomass can be returned after a clarification stage. The biogas is a source of renewable energy and converted into steam for the Distell site.

The effluent in this plant will be treated by the Biothane Biobulk® Anaerobic Digester, the heart of the plant. First, the digester reduces the effluent COD content by 94.1%. Next, a clarifier removes suspended solids, in turn followed by Veolia Hydrotech drum filtering for tertiary treatment. This ensures the total suspended solid (TSS) concentration is less than 150 mg/l.

► **Contact: [sangju.lee@veolia.com](mailto:sangju.lee@veolia.com)**

## Tianjin disaster: Veolia treats 1,100 metric tons of toxic wastewater

On 12 August, the warehouses containing 700 metric tons of sodium cyanide, a highly toxic substance, caught fire following the explosions in the Chinese city of Tianjin. Cyanide levels up to 28.4 times higher than normal were found in water near the disaster site.

On 15 August, **the Chinese authorities asked Veolia's Hazardous Waste Integrated Treatment Centre, located around 40 km from the site, to take delivery of 100 metric tons of toxic waste and to take 500 metric tons more on 18 August and 20 August respectively, for a total of 1,100 metric tons.**

This contaminated water will be securely contained before being treated.

Veolia's Hazardous Waste Integrated Treatment Centre in Tianjin has a treatment capacity of 350 metric tons of waste per day.

The toxic wastewater will be treated by oxidation - which transforms the cyanide to much less dangerous cyanide - and then neutralization.



# Veolia's contribution to the UN's 2030 sustainable development goals

The UN General Assembly is preparing to approve 17 new Sustainable Development Goals (SDGs) that will commit all countries, whatever their level of development. These goals reaffirm the link between fighting poverty, protecting the environment and sustainable development. A stakeholder in this new program, Veolia is committed to these new goals.

For several years now, a participatory process has been taking place internationally in order to identify technologies capable of meeting the 17 SDGs, and establishing the conditions for their deployment by 2030. **Veolia has been involved in these discussions. To promote access to water, sanitation and energy services, the Group provides integrated solutions that take into account the specificities of the local context.** The 17 SDGs will be accompanied by dedicated indicators and quantitative targets. Veolia will use these as a basis for future partnerships to contribute to the achievement of the post-2015 sustainable development goals.

<https://sustainabledevelopment.un.org/topics>



## Veolia Health and Safety week: “Zero Accidents” for all employees



Veolia has organized a World Health and Safety Week for the first time, which ran from 21 to 25 September, on the theme of “Working Safely Together”.

The purpose of the World Health and Safety Week is to remind everyone about the basic rules of Veolia’s “Always Safe” program and to circulate them. The rules are based on setting a good example, situation analysis, training at all levels, sharing of good practices and respecting discipline. They are intended to ensure that all the Group’s managers and employees understand and embrace a set of principles and good safety practices on a daily basis. It is essential that everyone is involved in order to improve

both Veolia’s prevention culture and its performance, and to achieve the goal of “Zero Accidents”.

### Key safety figures in 2014

The accident frequency rate was reached **11.7** (down by 7% compared to 2013)

**-17%** of lost-time workplace accidents compared to 2013

**58%** of Group employees underwent training in safety in 2014