

# Veolia Korea Industrial e-Newsletter

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## Veolia in Oil & Gas industry



**Downstream oil and gas activities consume significant quantities of water.**

Modern environmental standards require that this wastewater must be cleaned up before it can be discharged to the natural environment; furthermore, some contaminants can be recovered and converted into valuable by-products.

This combination of factors makes it both cost-effective and environmentally responsible for the industry.

## Scope of Veolia's Industrial Services

### Total Management

- Integrated (Water, Waste, Energy) hard & soft services management

### Maintenance

- Cleaning & Mechanical services for industrial sites

### Decommissioning

- Decontamination
- Deconstruction
- Remediation

Tank Cleaning

Soil Remediation

## TANK CLEANING

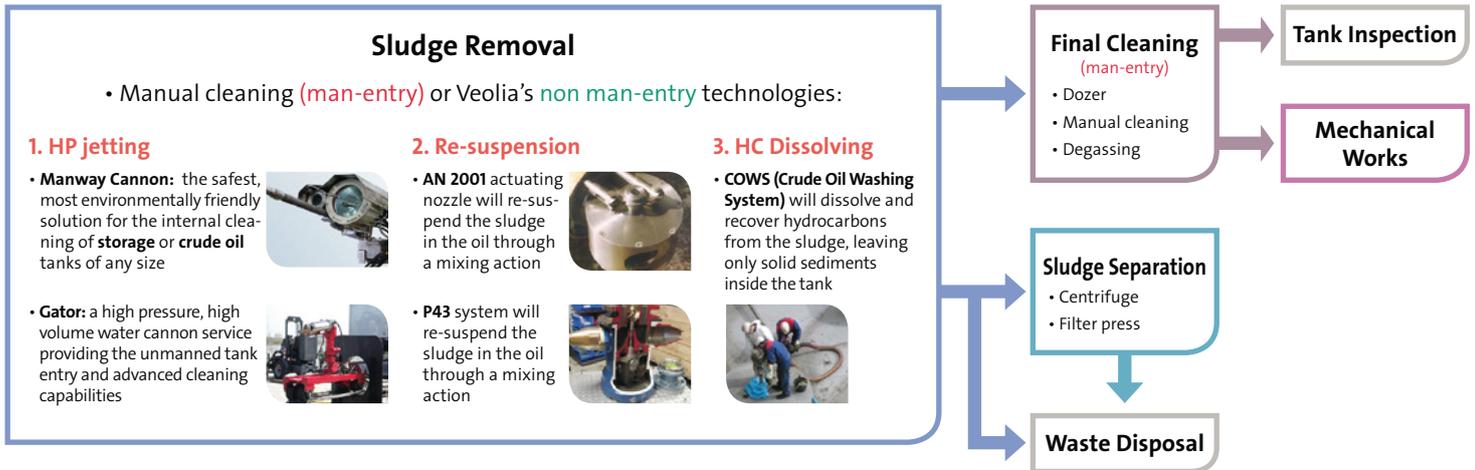
### Keeping your oil tank clean:

- To prevent spills and soil contamination
- Reduced storage capacity of refinery assets
- Dead stocks, as huge quantities of valuable hydrocarbons are trapped in the sediments
- Accelerated corrosion, due to water and salts concentrated between the sediment and the tank shell and floor, reducing its life expectancy

### Reference: Singapore Tank Cleaning & Maintenance services

Company	Contract
1. Exxon Mobil Chemical	<ul style="list-style-type: none"> <li>• Tar Tank (1,500 metric tons ) Cleaning services contract: 5 years</li> <li>• Clean Oil Tank Desludging &amp; Maintenance Contract: 3+2 years</li> <li>• Sewage Maintenance Services Contract: 5 years</li> </ul>
2. Oil tanking	Total Plant Management Contract: Yearly Renewal
3. TPC	Facilities Management Contract: Yearly Renewal

## Veolia Tank Cleaning Value Chain



## SOIL REMEDIATION

With a greater requirement for industrial and commercial sectors to manage remediation of sites and materials to both maintain and or restore environmental safety, it is integral to partner with an organization that can help.

**Veolia treats and remediates soil, liquid, non-liquid industrial residues, process waste, wide range of contaminants** including organics, persistent organic pollutants, as well as numerous other specific contaminants.

### Veolia's Solutions in Polluted Soil Remediation

- Derelict land remediation and rehabilitation
- Operating Sites Depollution
- Site Control and Assessment
- Accidental pollution Safety measures
- Former waste storage sites remediation

#### Soil Remediation Technologies



#### Reference: Lyon, France

### Lyon Confluence Project

One of the biggest European urban rehabilitation projects for the creation of a water recreation area.

Key Features	
<b>Project total cost</b>	€1145 million investment: 40% public-60% private.
<b>Construction plan</b>	Total Construction plan: 1 million m <sup>2</sup> 20,000 m <sup>2</sup> . river basin  Rehabilitate before      Rehabilitate after
<b>Project Steps</b>	<ul style="list-style-type: none"> <li>• Oct 2006: start of operations ~ 2008: completion</li> <li>• Excavation of 400,000 tons of materials evacuated and/or recovered after sorting by chemical identification.</li> </ul>
<b>Pollution Origin</b>	<ul style="list-style-type: none"> <li>• Coal deposits, Former gas factory</li> <li>• A total of around 60,000 cubic meters of materials have been treated on site using thermal, biological and physical-chemical processes. In a sustainable development approach, almost all of the treated soil will be returned to the site.</li> </ul>

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# Water, Waste and Energy: a key to the success of the circular economy

The integrated approach to water-energy waste resources is a key to the success of the circular economy, but it must be combined with a strategy allowing economic and social synergies to be developed.



## Social silos between industries, cities and civil society

A circular economy creates value for municipalities and businesses: for municipalities, it enhances their attractiveness and long-term resilience, and ultimately, the well-being of their residents and workers. For businesses, it is a hedge against their upstream risks including raw material availability and price volatility, and contributes to answering their consumers' expectations.

### Heat and hot water from local waste in Southwark, England

Veolia manages and uses biodegradable waste as a fuel to generate heat and electricity.



## Resourcing the world

Veolia's innovation leads ensuring access to safe drinking water and energy services for cities and their inhabitants, services to industry that guarantee continuous supplies for production processes, and recovery systems for materials within the circular economy approach.

### Durban: 98% of city's wastewater is recycled

The Durban Recycling Plan was developed by Veolia to switch manufacturing processes to recycled water. 98% of the city's wastewater is recycled, freeing up **40,000 cubic meters a day for consumption by citizens.**

**Reserving resources** is the second dimension of **Veolia's commitment**, which is about the balanced protection of ecosystems – extracting only what is strictly necessary by minimizing downstream impacts so as to guarantee there are no harmful effects on human health or the natural environment.

**Replenishing resources** is about creating new secondary resources. Through innovation in recycling materials and recovering waste, Veolia is providing solutions that significantly extend the lifespan and usage value of extracted resources.

The **Circular Economy dynamic** is the most sustainable path offering the ability of enlarging this horizon to energy, material and all resources, for a brighter future.

### Qatar: Pearl GTL Project

The Pearl Gas-to-Liquid (GTL) complex is the largest plant of its kind in the world. It is also a **great example of the circular economy.**

Each day it **produces 140,000 barrels of oil equivalent**, of which **120,000 barrels are converted into liquefied natural gas and ethane.**

**Shell and the Qatar Petroleum close Veolia to develop a unique process for recycling 100% of water generated** (45,000 cubic meters of water a day) during the gas-to-liquid transition so it can be fully reused on site.

This innovative solution meets the **ZLD target for the world's largest gas-to-liquid plant.**



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# Sustainable and smart cities of the future

Building eco-neighborhoods and smart, sustainable cities has emerged as a key priority. New megacities are increasing in density and becoming more complex at a startling pace. It is vital that we reduce the environmental footprint of cities and improve quality of life.

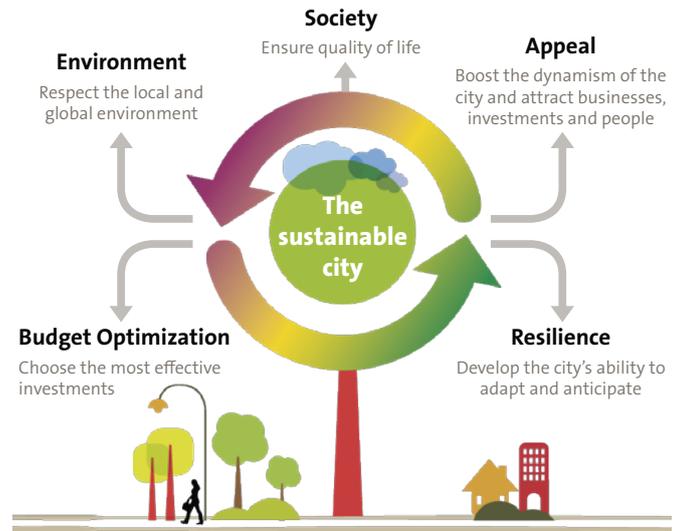


## Sustainable cities, new challenges

Veolia is rising to this key challenge by combining its expertise in water, waste and energy services to deliver comprehensive solutions for individuals, industries and municipalities in any given area. Examples include **smart network and smart building management solutions that provide qualitative and quantitative information in real time for a sustainable management of the utilities.**

## Veolia delivers an integrated approach for sustainable cities with:

- Specific solutions tailored to each context
- Solutions based on global flows management and encouraging synergies between water and energy or between waste and energy
- Integrating high performance technologies into services at the best possible cost with end-uses solutions oriented
- And last of all, with an adapted governance and a long-term involvement



## Tangible benefits of sustainable cities and Veolia's solutions:

- **Resource conservation:** wastewater recycling
- **Alternative energy:** using wastewater to produce energy
- **Quality of life & environmental health:** Waste collection, heat islands
- **Social equity:** developing access to water
- **Smart systems:** Urban monitoring using digital technology, drinking water traceability
- **Citizens empowering:** Awareness-raising services
- **Sustainable urban planning:** 2EI (Éco Environnement Ingénierie)

### Case study: Heat recovery from a data center in Val d'Europe Industrial Park



- **Context:** recover secondary energy from a data center to power a virtuous heating network
- **Solutions:** Use of a bank's data center as a source of heat for an urban heating network which will supply the business park.  
The heat emitted by the data center's cooling systems is recovered by a heat exchanger and used to bring the network's water to 55°C.
- **Results:** Supply of 26,000 mWh of heat annually, enough to heat nearly 600,000m<sup>2</sup> of buildings. Reduction in CO<sub>2</sub> emissions by over 5,400 ton/yr.

### Case study: Smart services – Mobile Apps for consumers

#### My Consumption: Be aware

- **Objective:** Deliver excellent customer relationship by adapting to the end-user needs for mobility and immediacy of information
- **Example:** MyWaterConsumption Daily information on water consumption, Details on the last utility bill, Leak detection and email or SMS alerting, information on tariff, water quality and on-going field intervention in the neighborhood.
- **Applied city:** Czech Republic, China, France, etc.



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