

Edelweiss

urban wastewater treatment plant



**Le Havre
(France)**

In March 2007, the Communauté de l'Agglomération Havraise (CODAH – Le Havre metropolitan area council) has entrusted SUEZ, as main contractor of the consortium SUEZ – Razel - Thétis, with the design and construction of a new wastewater treatment plant of 415,000 population equivalent. Edelweiss plant would enable the city to meet EU requirements, especially those relating to nitrogen and phosphorous.

There were two guiding principles for the design : respect for the environment and optimization of operation costs, as well as choice of simple and proven processes.

The plant uses three of Degremont®'s patented technologies : the Cyclor™ process, in which aeration and settling take place in a single tank, providing a true alternative to conventional extended aeration. Two sludge Densadeg® TGV settling units are also implemented, to provide high-rate treatment of storm water, and the sludge produced each day is dewatered in a filter press and then incinerated in a Thermylis™ incinerator.

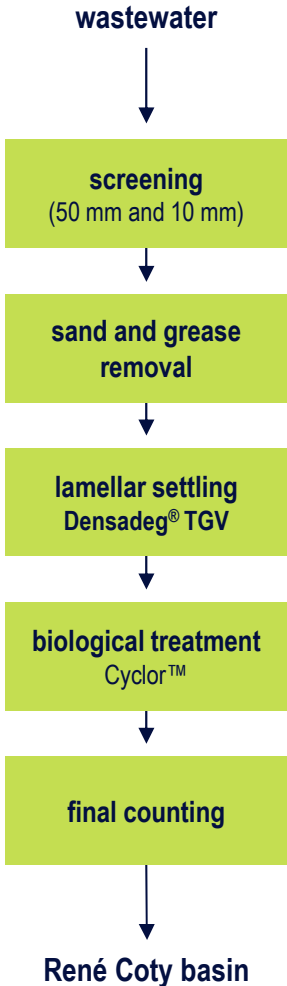
Designed to keep nuisance to an absolute minimum, the plant, located downtown, is of a contemporary architectural design that blends with the city's urban development plans. In addition, the compact design of the processing units allows the authorities to reclaim one hectare of land for subsequent development.



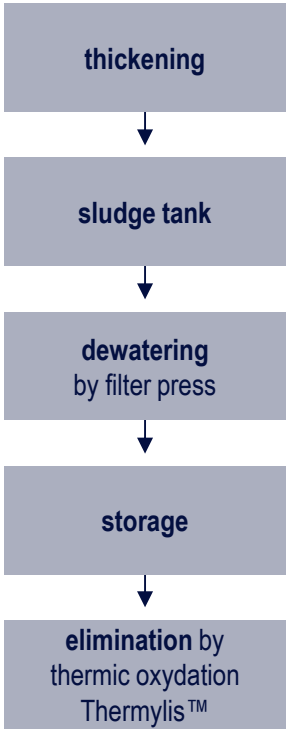
objectives of the new plant

- Ensure the maximum protection of the estuary with compatible level of treatment of an estuary classified as sensitive zone
- Reduce the footprint with a reduction of energy consumption
- Accommodate all night soils and curing matter
- Ensure an efficient management of the nuisance for neighbours
- Respect its environment and secure its architectural integration

water treatment line



sludge treatment line



air treatment line

In order to better manage nuisance on nearby residents, hydraulic works have been covered and the plant is equipped with Azurair® C odor control system - chemically scrubbing foul air in 3 towers (caustic soda, bleach).

the plant is equipped with 3 degrémont®'s technologies patented



○ Cyclor™

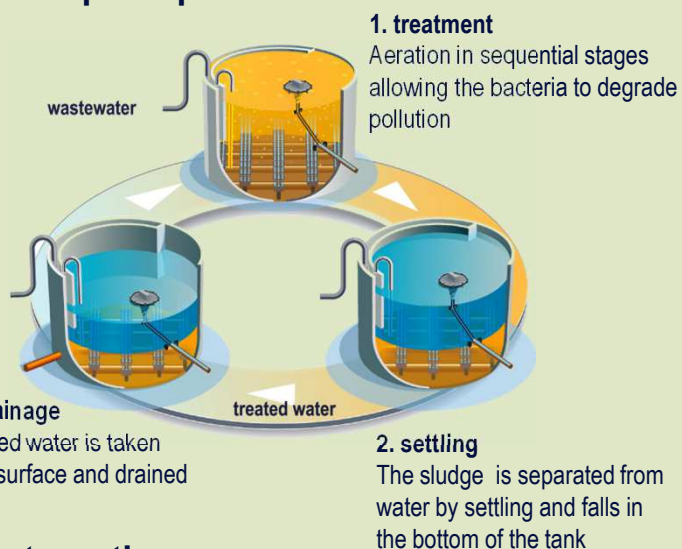
a complete treatment system allowing discharge in sensitive areas

Edelweis wastewater treatment plant includes 2 biological lines each equipped with 4 Cyclor™ cells (capacity 129,600 m³/d)

Part of the SBR family (Sequencing Batch Reactor), the Cyclor™ is made up of cells which together complete a discontinuous sequential process, where all treatment phases take place in one single tank. Treated water is discharged during the decanting phase using a patented floating decanter.

After Cyclor™ treatment the plant achieves a NGL2 quality level of nitrogen (total nitrogen < 10 mg/l) and Pt2 quality level in phosphorus (concentration < 1 mg/l).

operation principle



main strengths

reliable

especially suited to treatment of discharges in sensitive areas, simultaneous treatment of carbon, nitrogen and phosphorus.

compact

the treatment is done without secondary settling, footprint is reduced by around 40% compared with a traditional solution.

respectful

its compact design is determinant on sites with strong environmental constraints.

○ Densadeg® TGV

an efficient separation system - fast and easy operation even in case of great variation in flows and/or load

Installation of 2 Densadeg® TGV lamellar settlers allows an accelerated settling treatment for the water in wet weather conditions. This work optimizes the flocculation thanks to the sludge recirculation.

During dry weather conditions, these works are used as primary settlers for a part of inlet flow, improving sludge combustibility and achieve sludge self thermal protection.

○ Thermylis™

thermal processes to destroy organic matter

The sludge daily produced is dewatered by 3 press filters and then removed by thermal oxidation on fluidized bed Thermylis™. This process is the most appropriate to economic and environmental context and offers the greatest advantages in terms of operation and safety flexibility.

Thermylis™ transforms sludge into a mineral product that is not harmful and can be recycled. This unit includes a heat recovery system to process facilities and dry flue gas treatment system in conformity with the relevant Environmental European standards.

Thermylis™ saves energy costs and allows drastic reduction of sludge tonnage to be disposed of.



objectives of the treatment

dry weather conditions	concentration
BOD ₅	20 mg/l
COD	90 mg/l
Suspended Solids	15 mg/l
NGL	10 mg/l
NTK	5 mg/l
Pt	1 mg/l
Fumes	According to prefectural order dated 30.07.2008 and order dated 20.09.2002

stakeholders

Client :
CODAH (Communauté de l'Agglomération Havraise)

Contractor :
SUEZ as lead contractor for the consortium SUEZ (Process, planning & coordination) - Razel (Civil Works) – Thetis (Architecture)

key dates

- **works duration**
42 months
- **commissioning water line**
starting date 7 December 2010
- **commissioning Thermylis™ furnace**
16 June 2011
- **taking over certificate**
12 April 2012

capacity

dry weather hydraulic capacity :

129,615 m³/d

wet weather hydraulic capacity :

226,800 m³/d

dry weather peak flow :

2 m³/s

wet weather maximum flow :

4 m³/s

sludge incineration by self-combustion :

10,000 t/year

by-product treatment :

5,200 m³/d

air treated flow :

80,000 m³/h

www.degreмонт.com

Since March 2015, all the Group brands (Degreмонт, Ozonia, Aquasource, Ondeo IS, Ameriwater, Infilco, Poseidon...) became SUEZ.

Meanwhile, from now on, the technologies and know-how of our Treatment Solutions offer will be distinguished with the label **degreмонт®**.

