



From cessation of activity to site remediation

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History of the Viviez site



Usine de Viviez en 1905

132 years of industrial activity between the start of the plant in 1855 and the cessation of the zinc smelting activity et in 1987.

Two completely different smelting processes that generated industrial contamination.

- **1822- 1930** : Thermal process
- **1930-1987** : Electrolytic process

History of the Viviez site



Residues resulting from thermal process : DUNET

- **1870- 1930** : Approximately 1 million m³ of slags stored in Dunet.



History of the Viviez site



Residues resulting from electrolytic process : DUNET

- **1930-1987** : 100 000 m³ of lead sulphate stored in the slag heap at Dunet.



History of the Viviez site



Residues resulting from electrolytic process : IGUE DU MAS

- **1930-1987** : 600 000 m³ of goethite stored in 3 ponds t Igue du Mas



History of the Viviez site

Residues resulting from other processes : CERONS

1930-1987 : 170 000 m³ of flotation residues from paint activity (lithopone, BaS²) at Cérons

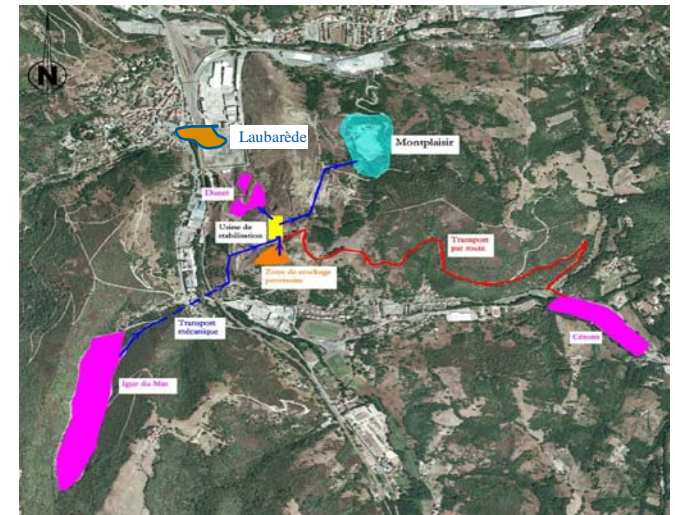


History of the Viviez site



Remainings from ore storage : LAUBAREDE

1870-1987 : 120 000 m³ of remainings from ore storage at Laubarède .



Contamination caused

- Different residue piles still leaching metals to the environment
- Contamination of soil and groundwater
- Contamination of surface water, mainly with cadmium

Cessation of activity

- In 1987, it was decided to stop the primary zinc treatment activity :
 - Difficult metals market
 - Difficult location, with no space to store waste safely
 - Closure of nearby coal mines
 - Closure of Pb-Zn mines in surrounding areas
- The simultaneous closure of the coal mines and zinc smelter resulted in a region-wide loss of jobs.
- Therefore, Umicore decided to keep 1 activity at the site (zinc rolling mill, currently still in operation) and to create other activities nearby (still in operation as well).

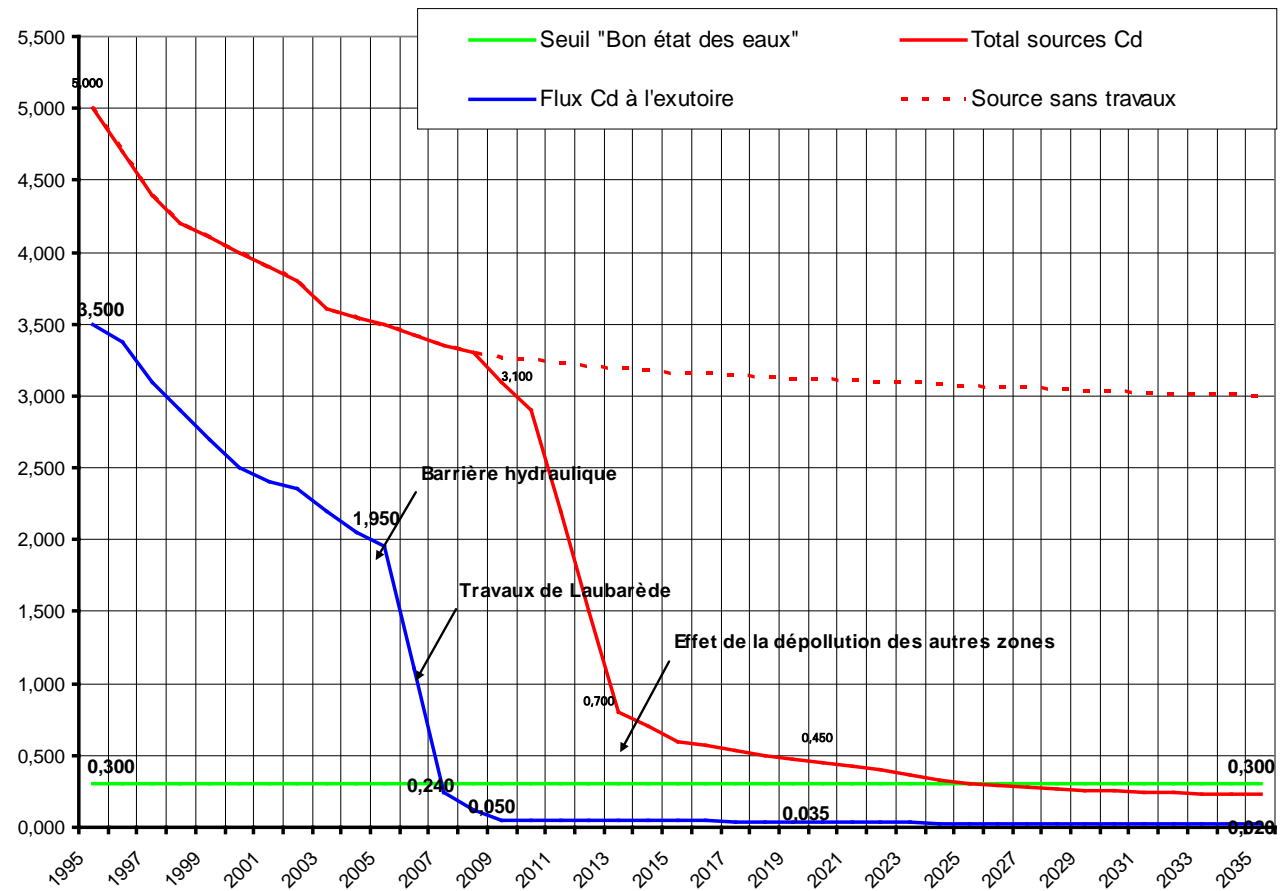
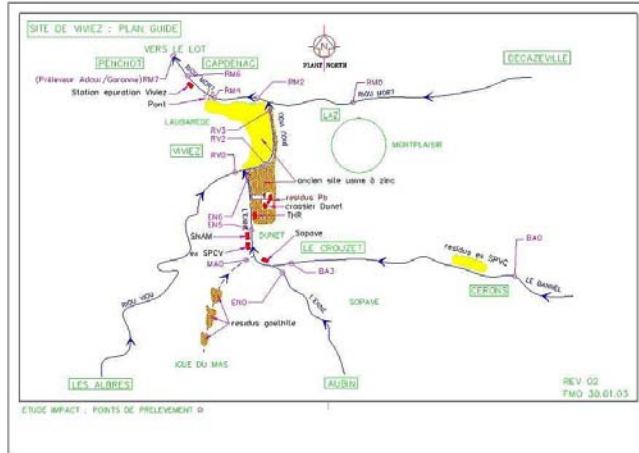
Cessation of activity

- Site closure was done according to 1987 legislation
- Works carried out by Umicore after cessation of activity in context of this legislation :
 - Signing of agreement with surface water authority (Agence de l'Eau Adour Garonne)
 - Investigation of Dunet and of groundwater body in the Riou Viou valey
 - Excavation of part of the lead residues stored in Dunet and transfer to ponds at Igue du mas.
 - Covering of remaining lead residues in Dunet and of the 3 ponds at Igue du Mas
 - Upgrading the WWTP and capturing of all contaminated fluxes
 - Demolishment of the zinc smelting plant
 - Installation of an hydraulic barrier downstream of the WWTP

RESULT : quality of surface water improved, but still not satisfactory !



Evolution of Cd content in surface water ericore



- **Group sustainability policy and objectives**

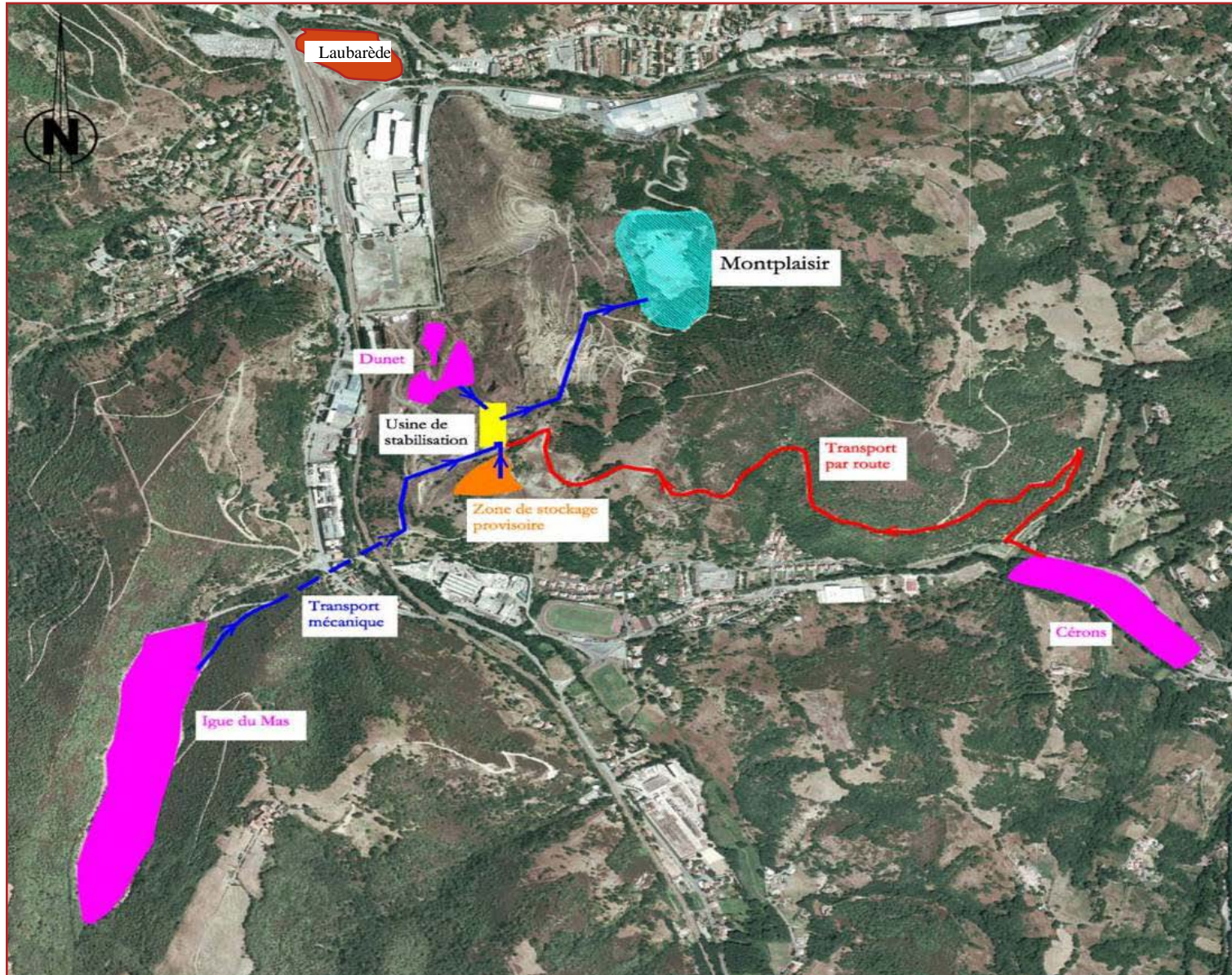
- « *Umicore will address its historical contamination legacy in order not to pass this burden to the future generations* », Thomas Leysen, CEO
- « *All industrial sites have to assess the nature, extent and risk of their past and present activities on soil, groundwater and ecosystems. By end 2010, remedial actions should be initiated at those sites where significant risks were identified.* »

Consequences of this policy

- Further investigation and risk characterisation at the Viviez site
- Elaboration of several remediation concepts
- Umicore deliberately chose the most drastic but also most expensive concept :
 - In order not to be obliged to come back due to future legislation
 - In order to render the area again more attractive to the population
 - In order to make sure that the maximum feasible solution for improving the environment was done.
 - Cost of the entire project : 35 Mio €

- Overall retained concept :
 - Excavate former concentrate storage area (Laubarède) : done in a pre-project to satisfy the demand of the local fire brigade
 - Excavate Igue du Mas ponds
 - Excavate Cérons
 - Excavate Pb-residues in Dunet
 - Treat to immobilise all waste streams. Total volume more than 1 Mio m³
 - Store all immobilised waste in a newly created landfill (Montplaisir)
 - Landscape Dunet

Remediation project



- Constant concern to minimise exposure of the general population to any nuisance during the works :
 - Dedicated communication team in place
 - To avoid trucks crossing the village :
 - construction of a 2km long conveyor belt to transport waste from Igue du Mas to treatment facility and later to Montplaisir
 - construction of a road to transport waste from Cérons to treatment facility
 - Constant air and water monitoring
 - Dedicated safety measures in place

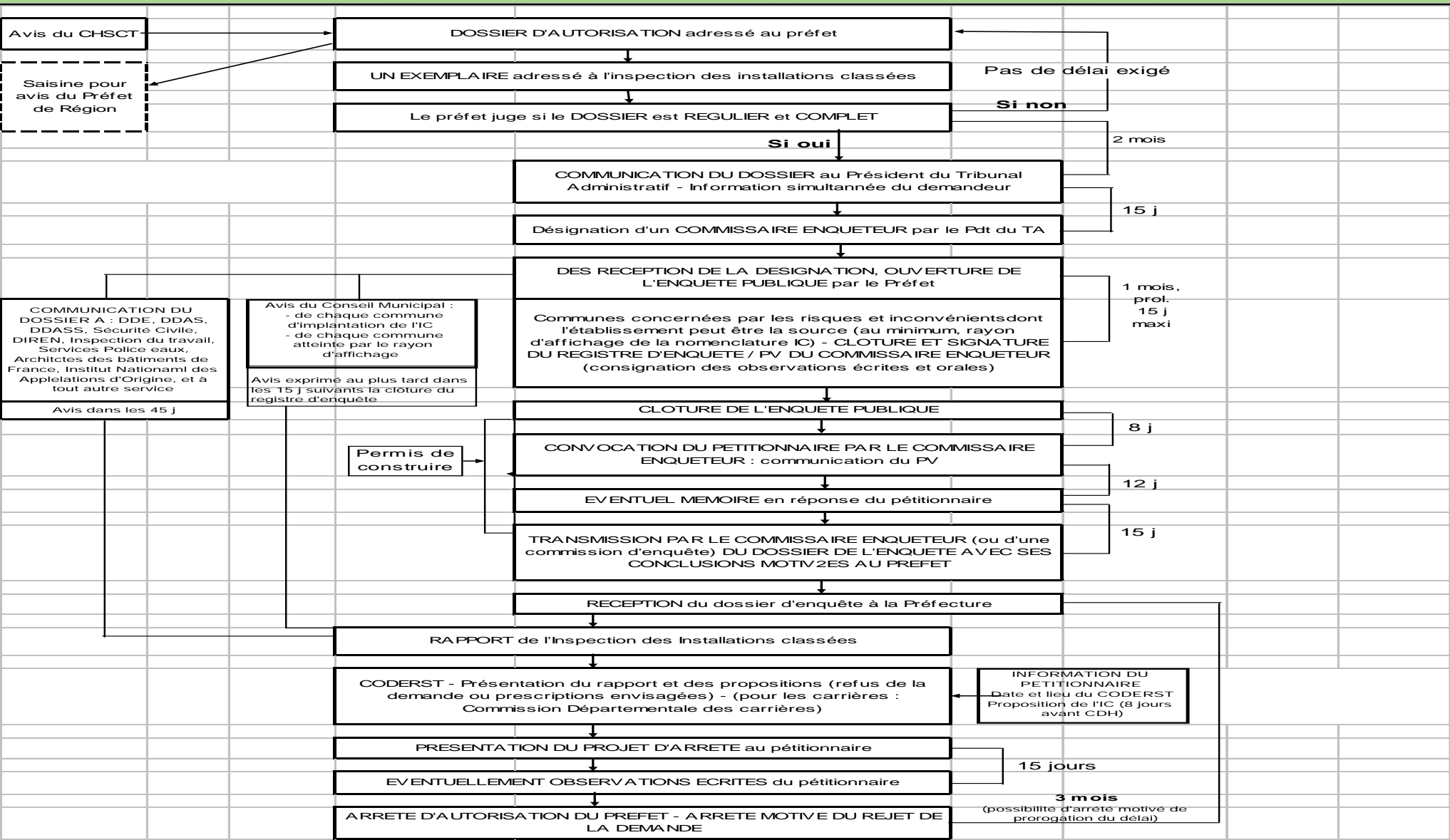
Getting the permit : a long and winding road?



- An impressive number of authorities and stakeholders had to be consulted
 - DREAL (former DRIRE) and Préfecture who deliver the final permit. Stumbling blocks were staff rotation
 - The local population and the local authorities of Viviez and the surrounding communities
 - Water authorities
 - Agriculture and Forestry
 - Public health and social affaires
 - Cultural affaires
 - Road constructions affaires
 - Environmental affaires
 - Department for protection of labelled products (Bleu de Causse)
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- Creating a climate of thrust was key
- Getting the final permit turned out to be a less long and less winding road

**THE BABY WAS DELIVERED IN SEPTEMBER 2009 AFTER
2 YEARS OF NEGOTIATIONS**

The way to get the permit



Where are we today?

