

Groupe Expertise Pluraliste



Impact of uranium mines water treatment on the behaviour of uranium and radium

The case of St Pardoux lake, Limoges, France

Uranium Mining and Hydrogeology V

September 14-18, 2008 - Freiberg



the Groupe d'Expertise Pluraliste

Why

Ministers of environment, industry and health
Nuclear Safety Authority
Revision of the French uranium mines management is required

When

2006 - 2009

Who

A president (R. Guillaumont)
~ 30 members: Experts from governmental Offices, non governmental associations, industry, university, individuals

How

Work based on the 10 years environmental report produced by AREVA NC

Work on the Limousin case (scientific and social aspects) to:

- make recommendations and to give advices;
- propose a method to extend its advices to other French uranium sites;
- report to French authorities, local or regional committees.

4 thematic working groups and a plenary group



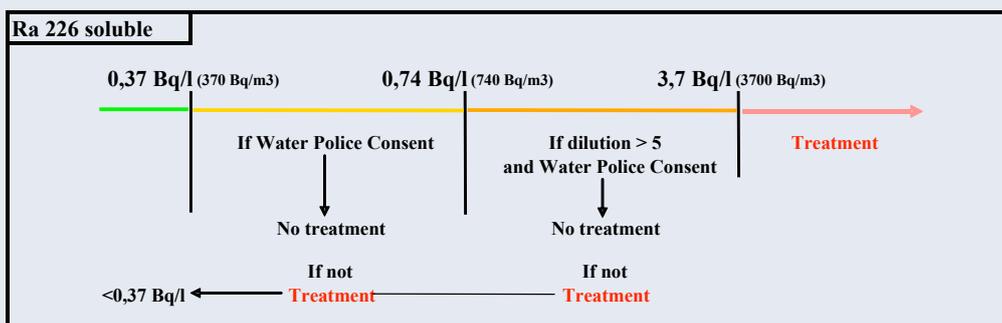
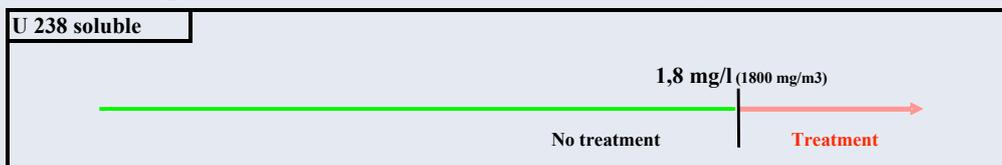
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When is water treatment required?

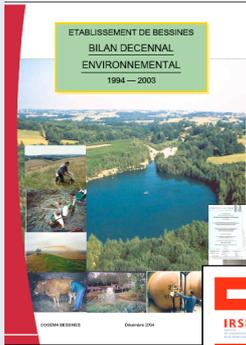
Present regulation : French decree n°90 – 222 (1990)



Locally more restrictive values are imposed to reduce the environmental impact



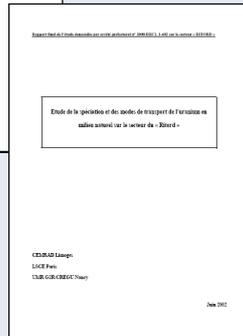
Data sources



10 years environmental report by AREVA-NC
Survey Data base (Water and sediments)



IRSN's review of the previous report

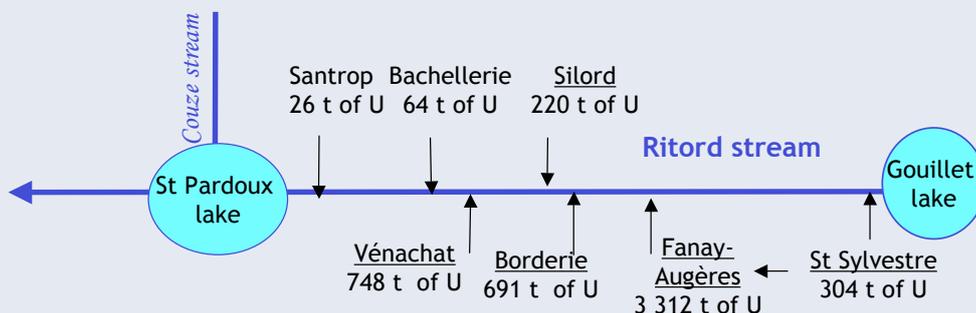
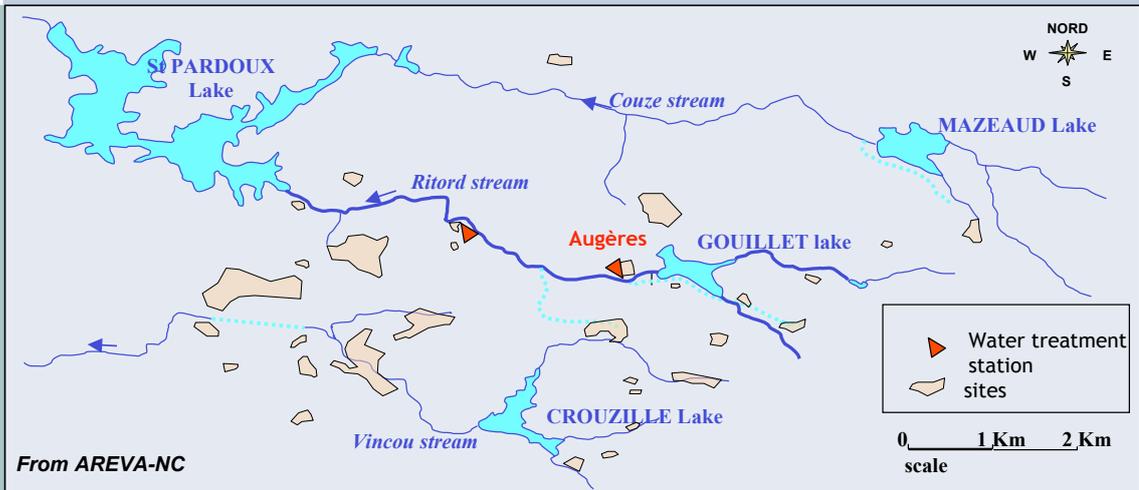


Geochemical study conducted by the
« CREGU » in 2001
and 2008

RITORD



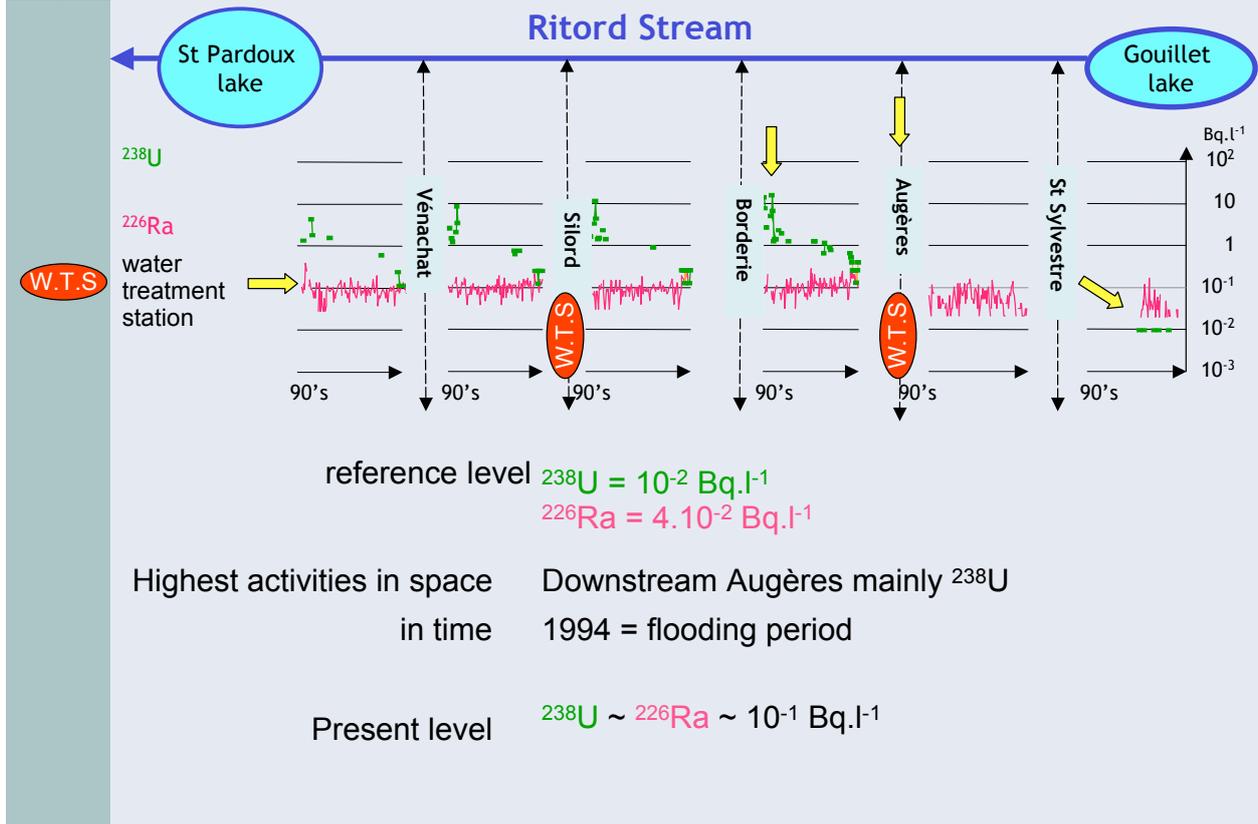
RITORD's watershed





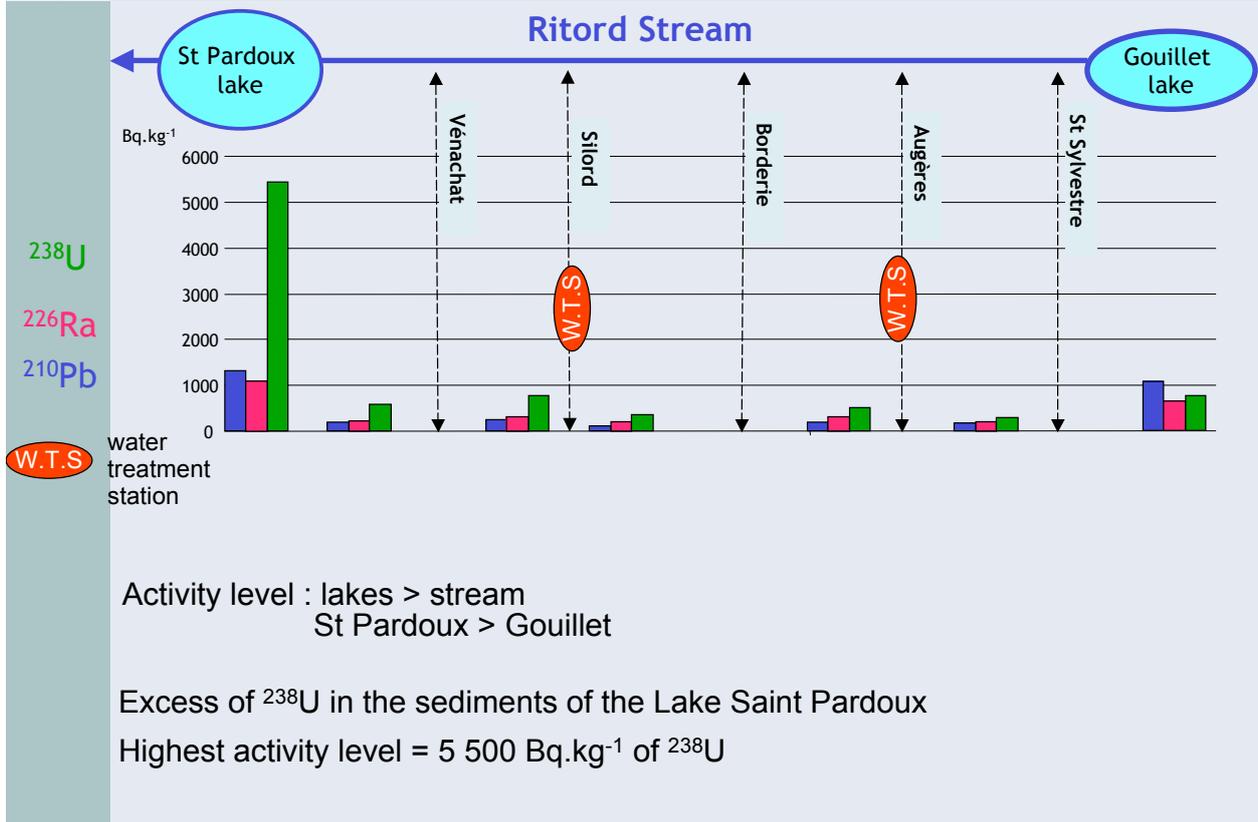
Impact of mine's water inflow to the Ritord

WATER



Impact of mine's water inflow to the Ritord

SEDIMENTS





Public concern with “contaminated” sediments

The increase of activity level in water and sediments may be considered as a potential radiological hazard

No demonstration of an actual impact (which does not mean no impact)
No relevant regulatory threshold value on sediments

Nevertheless, the French authority demanded to AREVA NC to:

- clean up the Saint Pardoux lake;
- improve the water treatment effectiveness.

Objective = keep ^{238}U activity level in sediments of the Lake under the value of $3\,700\text{ Bq}\cdot\text{kg}^{-1}$ (value derived from waste rock management regulation)



Cleaning operations



- 1 emptying the lake
- 2 define area with activity level $> 3\,700\text{ Bq}\cdot\text{kg}^{-1}$
- 3 clean these areas
- 4 check for the effectiveness of the cleaning

