EVALUATION SCHEME USING CHARACTERIZATION TESTS, MODELING AND FIELD DATA

CHARACTERIZATION
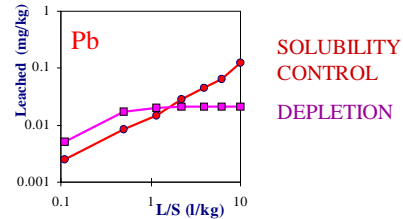
pH DEPENDENCE TEST

WASTE

pH

ANC/BNC (mol/kg)

Leached (mg/l)

Pb

pH
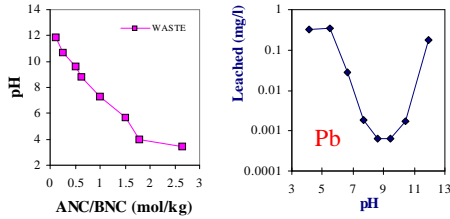
ANC data

Leaching as function of pH

PERCOLATION TEST

Leached (mg/kg)

Pb

SOLUBILITY CONTROL

DEPLETION

L/S (l/kg)

Time dependence of leaching

QUALITY CONTROL

CONCISE TEST

Condition	CONC. mg/l	Rel.mg/kg
L/S=10; own pH	0.01	0.1
L/S=2; own pH	0.01	0.02
pH=8; L/S=10	0.0008	0.008
pH=4;L/S=10	0.5	5

COMPLIANCE TEST L/S=10

PARAMETER	CONC. mg/l	Rel. mg/kg
As	0.2	2
Ba	1.3	13
Cu	0.2	2
Pb	0.01	0.1
…		

REGULATORY LIMITS

PARAMETER	REG 1 mg/kg	REG 2 mg/kg
As	0,1	0,5
Ba	2	5
Cu	0,8	2
Pb	0,02	0,1
…		

Leached mg/l (L/S=10)

Leached (mg/kg)

Laboratory conditions

REG2

REG1

Field conditions

pH stat; L/S=10

Pb

pH

Leached (mg/kg)

Pb

Solubility control

Lab

Field

Column; L/S=0,1 -10

L/S (l/kg)

Time (y) Open

Time (y) Isolation
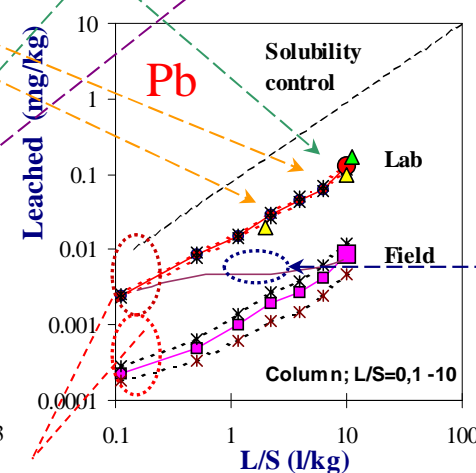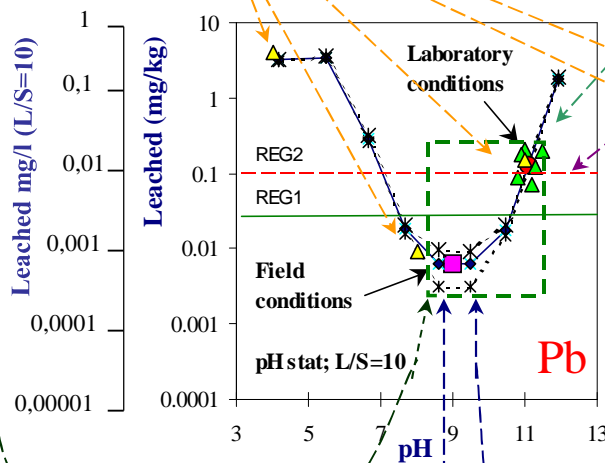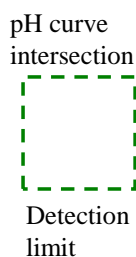
Rate of change from one exposure condition to another

Evaluation of porewater quality
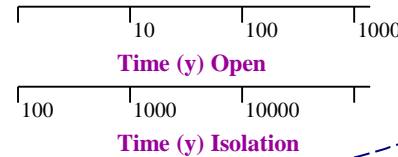
Field observations:

Infiltration rate (open/isolation)

Hydrology

DOC generation

External influences
- pH development
- redox state

pH curve intersection

Min. field pH

Max field pH

Detection limit

Modelling:

Release scenarios

Geochemical speciation (solubility control, minerals)

DOC interaction, redox

Ageing

Transport processes

VANDERSLOOT NL