
Industry's approach to the Water Framework Directive

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This is Boliden

Mines and smelters

Our purpose:

To provide the metals essential to improve society for generations to come

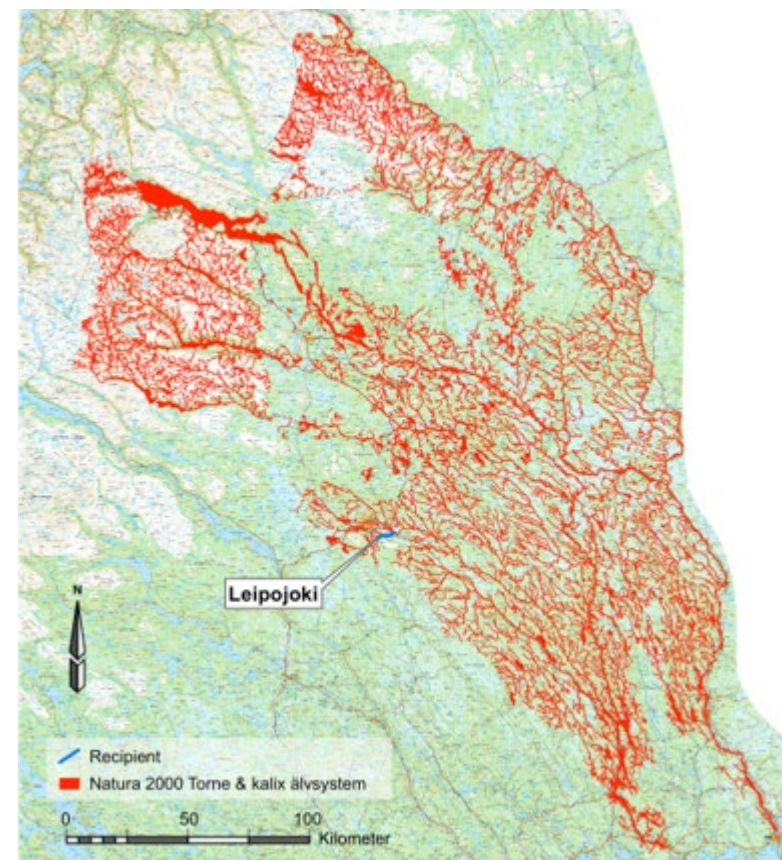
Our vision:

To be the most climate friendly and respected metal provider in the world



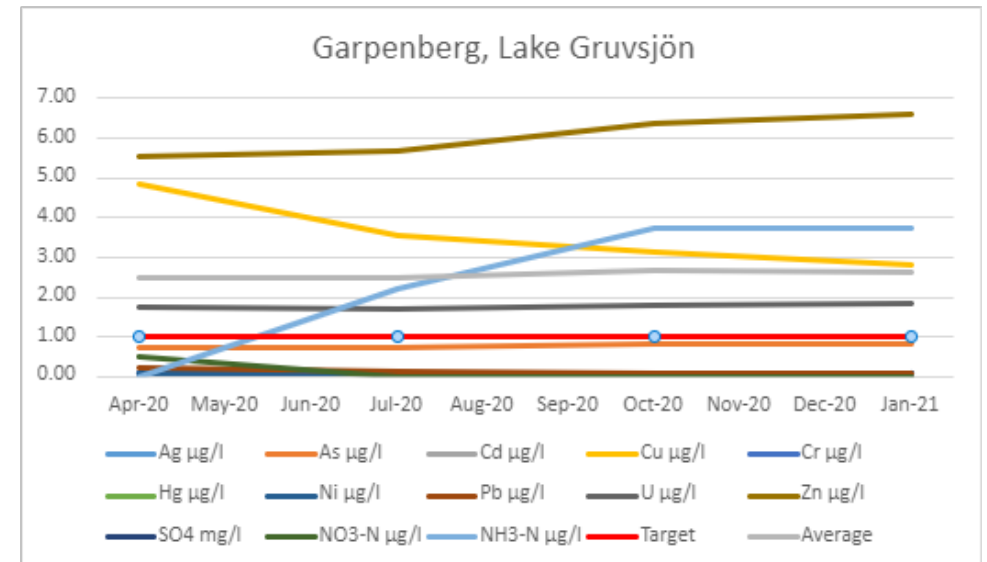
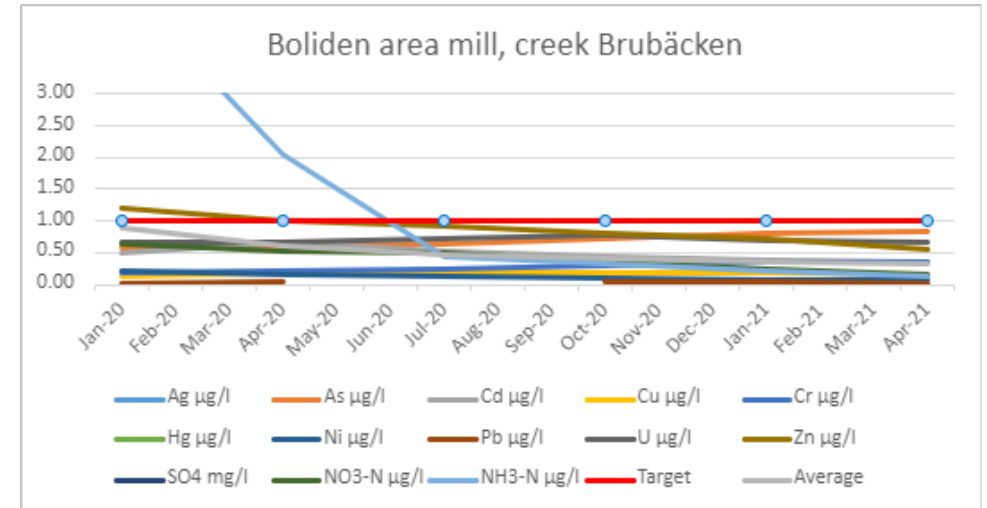
Introducing Water framework directive

- River basin perspective
 - Good ecological and chemical status
 - Priority substances – Environmental Quality Standards (EQS)
 - Bioavailability
 - Less stringent environmental objectives
- Torne and Kalix river basins



Bolidens Good practice

- Monitoring nearest recipient for relevant substances (including substances needed to calculate bioavailability)
- Calculate and report annual average for last 12 months every quarter
- Comparing annual average with EQS (ratio AA/EQS_{AA})
- Investigate and take action if ratio is raising, getting close to 1 or exceeding 1



Why is implementation of WFD also a problem

Ore can only be mined where the **deposit** is

- Our bedrock was formed **billions of years ago**
- **The deposit** shapes the mine and its surroundings and can not be moved
- Tailings storage facilities are large and **are best placed in a water body**
- **Surplus water** has to be released to recipient
- Despite closure work and after care, **some impact** will remain

Best available technique from **several** perspectives

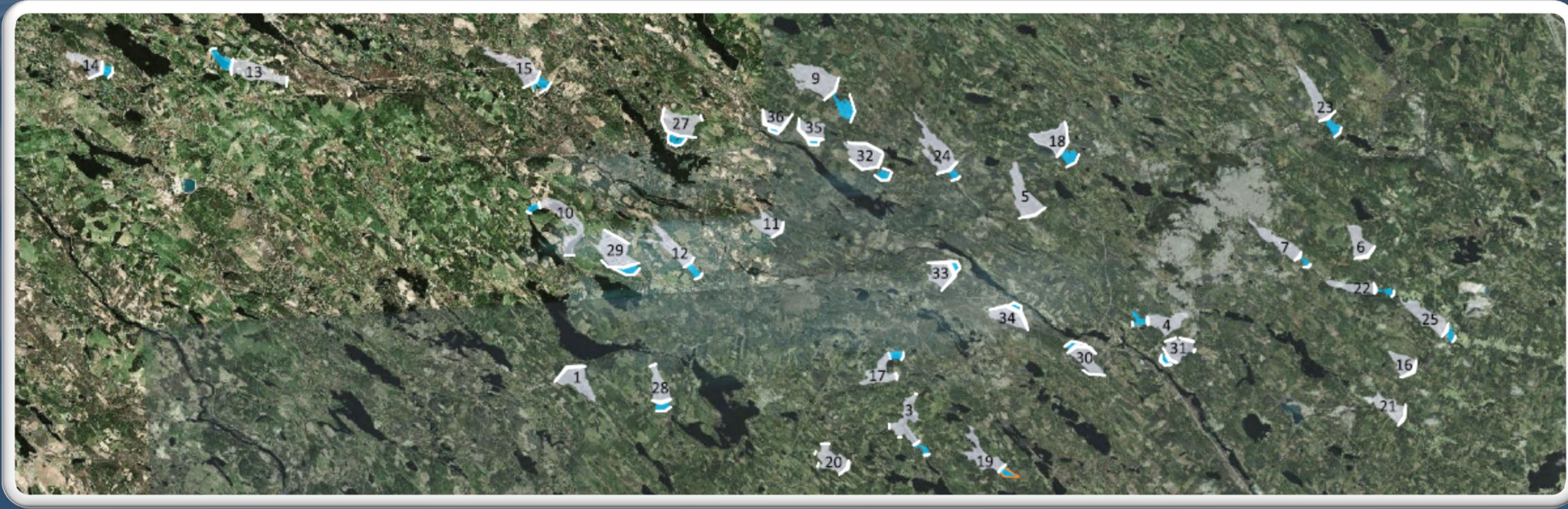
- Acid Mine Drainage (AMD)
- Dam safety
- Use of other raw materials (mined elsewhere)
- Energy consumption

Implementation of WFD causes a halt

- Implementation of WFD makes it impossible in principle to locate a new tailings storage facility without a forbidden impact on a water body!
- Boliden performs location investigations in projects with new mine sites and renewal of existing mine sites.
- The outcome is discouraging...

Stop in Boliden area

A detailed investigation of location within the area between Boliden mill and Kristineberg mine (1200 km²) shows that there **is no location of a new tailings storage facility** that could meet the current enforcement of the water framework directive (25 technically suitable alternatives identified)



CONSEQUENCES

Consequences

For existing activities:

- Short term – tailings storage facilities are built higher
- Increased consequences if accidents happen
- Highly increased costs
- Makes closure and aftercare more complicated, harder to perform and more expensive
- In long term perspective (ca 10 years) it means that, if new facilities can not be located anywhere, the mine site will have to close in advance

For new activities:

- Permit can not be received (already happening)

Less stringent environmental objectives

Existing activities:

- Less stringent environmental objectives can be applied under certain circumstances (very unusual in reality)

New activities:

- Very uncertain if it is possible to use an entire water body (lake or stream)
- Less stringent environmental objectives is not used for a discharge that risks good status
 - Even a small change in one parameter, even if it has proven to lack actual environmental impact in the specific water body
 - Many parameters and narrow limits makes it hard not to adventure good status. For example in a small water body next to a tailings storage facility

HOW TO RESOLVE THE SITUATION

How to resolve the situation

- Make it clear how to take/remove a water body - e.g. to locate a tailings storage facility
- Prioritize **less stringent environmental objectives** close to mine sites
- Larger water bodies
- Review national environmental quality standards (EQS)
- Use site specific environmental quality standards
- Spread knowledge about the benefits and conditions of mining industry