

Community perspectives on the prediction of ARD

Challenges in the prediction of drainage chemistry from
rock weathering:
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Who is interested in ARD?

- An outsider's perspective on the prediction of drainage chemistry from mining operations
- A 'community of interest' perspective – with aboriginal populations in mind.

'Stakeholder involvement'

- Stakeholder input is a feature of federal environmental policy development
- Implications uncertain
- Should not be taken for granted
- Maybe time to re-assess

The mining industry is concerned

- Questions are being asked about performance of the industry
- Initiatives are under way to improve communications and public outreach
- Both national (e.g. TSM) and international (e.g. MMSD) in scope

The institutional environment is also changing rapidly

- Recent aboriginal land claim settlements have changed the political geography of much of the Canadian Shield
- The process is still under way in some regions.

Public involvement in environmental review/project approvals

- Many land claim agreements provide for local/regional public input into environmental approvals
- Significant changes are under way in information needs and accessibility for project approvals
- Limited attention is so far being paid to
- these changes

Where does predictive modelling of ARD fit into this picture?

- The use of predictive models for ARD is becoming taken for granted
- Modelling, its limitations and uncertainties need to be better understood.
- Regulators, industries both look for certainty, but we also need to acknowledge uncertainty
- Public engagement requires critical understanding of the modelling/predictive process and its limitations

MMER, and EEM are raising the stakes

- Public engagement in MMER and EEM implementation is a growing challenge
- Parallel initiatives at the level of the provinces, territories, land claim settlements
- Communications around the science and technical issues are increasingly relevant

Some problem areas for further work – in communicating the science of metals in the aquatic environment

- Metal speciation – what do we need to know?
- Analytical issues – what should the non-specialists understand?
- Natural Organic Matter (NOM) – key variable at the watershed level – but very complex – and linked to hydrology

Further work – continued

- The significance of wetlands/submergence in containment of sulfidic tailings
- Regional geochemical backgrounds – what we know and don't know – who is responsible and how do we strengthen the data base?
- Do we know what to monitor and how to do it?

Some recommendations

- Public stakeholder involvement - a fresh look is needed to find ways of more effective participation
- The need for effective public engagement is growing – and a response from the mining industry is needed
- The implications of public involvement in new structures in land claim settlement needs closer attention – from the industry and from regulators

Some recommendations - continued

- There is growing reliance on predictive modelling as an ingredient in impact assessment.
- The methods, aims and limitations of modelling used for impacts in the mining sector require more discussion, better communications
- The siting and design of tailings ponds provides useful illustrations

Some recommendations - continued

- There are specific issues which need further exploration on a collaborative and open basis
- How we measure metals in water and what does it mean?
- Where does organic carbon fit in?
- What does the background look like?
- Do we monitor, and do we know how to monitor?