4.2. PANEL DISCUSSION OF REQUIREMENTS AND PRACTICE

4.2.1. Chris Mills

- mineralogy a theme in recent large mining projects
- prediction phase is of primary importance
- adequate data collection is a pre-requisite
- credentials of ARD prediction personnel must be adequate
- mineralogists and geologists must be consulted during the ARD study
- sampling is critical - perform additional sampling when necessary
- during evaluation, specific mineralogy must be considered
- distribution of NP within the solid phase must be considered. Contributions to NP include; water soluble, suspended clay, tailings sands (both NP and AP) and separated tailings fractions
- NP for the sample is a sum of all contributions to NP

4.2.2. Rick Lawrence

- tools for accurate determination of NP are available
- there are no 'magic bullets' to ARD chemical prediction as it is site specific
- there is a distinct need for more transfer of information or communication on the applicability of the techniques
- the relationship between laboratory and field data must be addressed; field tests are useful for this purpose
- the onus is on the industry to recommend alternatives or substantiate claims of 'better tools'; a peer review mechanism should be in place in these instances.

4.2.3. Glenda Ferris

- the environmental community must be included in the loop
- the authority of ABA test work is very fragile and the data derived from this work is not absolute
- mining companies must be better represented at these technology transfer meetings
- scaling-up issue of ABA tests must be addressed
- biochemical, hydrogeochemical and physical aspects must be addressed and natural phenomenon must be incorporated into predictive models
- validation of modelling requires a further 10 years of field validation
- policy is driven by 'experts' however, the uncertainty inherent in prediction and even control of ARD is not adequately translated
- detailed costing of sites is necessary to demonstrate the differences between various close-out scenarios
- covers cannot be considered as prevention
- issues of uncertainty and risk are becoming more important and industry must have a clear framework for addressing these two issues
- very great caution must be taken with 'models'

4.2.4. John Bennett

- an initiative (Managing Mine Wastes) to set up a major national organization is being undertaken in Australia
- Mission - to provide a sound scientific basis for decision making on the management of mine wastes
- approximately $3M over 3 years
- research topics include:
    - water transport in waste rock dumps (a significant role)
    - research on the frequency of maintenance for covers
    - remote sensing on environmental impact
- priority setting to be established in consultation with industry
- a research/business plan to be prepared
- intellectual property to be made public
- there must be a Canadian component

4.2.5. Luc St-Arnaud

- need more careful assessments/interpretations of laboratory tests using current tools
- need site scale assessments
- need prediction exercises on specific control strategies (e.g. water covers)
- need a synergy between prediction, mineral processors and mine planners
- need to meet objectives of clean tails
- Prediction committee of MEND has assembled a good knowledge base that may lead to better modelling strategies
- must have recommendations for future research based on current package of knowledge
- must have a consensus/forum approach for model development

4.2.6. Alan Young

- the mining industry is dealing with a greater public awareness and thus more input by environmentalists/public interest groups is warranted
- uncertainty does exist in prediction exercises and individuals who suggest certainty with measurements will be criticized
- there is a need to look beyond the physics and move towards risk management

4.2.7. Doug Chambers

- ABA methods determine a potential for ARD but do not address time or quantity
- deterministic modelling provides a framework for integrating available data and also provides a basis to understand the processes and mechanisms involved
- modelling needs to address the physics and hydrology of waste rock piles
- the role of secondary minerals needs to be addressed
- scaling from small laboratory tests to field conditions need to be addressed
- modelling forms a framework to;
    - assess the future behaviour of mine wastes
    - assess management alternatives and their effectiveness
    - forms a basis for discussion of the uncertainties

4.2.8. Peri Mehling

- future efforts should focus on the following:
    - hydrology - use test dumps
    - drainage of waste dumps
    - place critical test dumps where drainage can be monitored
    - operational monitoring
    - long-term site monitoring - the long term feed back loop must be recognized
    - documentation