Partnersing to Support Sustainable Mining

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Summary

- INAP and what we are doing
- Update on the GARD Guide
- Capacity building
- Waste management - the elephant in the room
- Soil cover guidance
- Sustainable mining needs the efforts of all stakeholders
Global ARD Guide
(www.GARDGuide.com)

“An international guide for facilitating world-wide best practice in prediction, control, and mitigation of acid rock drainage.”

“The guide will become a reference document for all stakeholders involved in ARD and waste management issues.”
Gaining Value from the GARD Guide

- Prevent ARD rather than treat it
  - Minimize and characterize disturbed material
  - Plan and design for closure from the start
  - Integrate the GARD into operations
  - Update closure costs regularly
- Engage all stakeholders in the process – shared responsibility
BARRICK’s Use of the GARD Guide

- Include ARD prediction & prevention in new mines
- Integrate ARD management into mine operations
- Assess environmental & financial risks
- Link future and current operations
- Used as a Standard of Practice
Volume I
EIA Technical Review Guideline: Non-Metal and Metal Mining

Prepared by CAFTA DR and US Country EIA and Mining Experts with support from:

Also referenced in the
- U. S. EPA CLU-IN webinar on mining – resources and links
- ITRC mining waste treatment technology selection – additional resources
Printable Version of GARD Guide

The International Network for Acid Prevention
Global Acid Rock Drainage Guide
June 12, 2014

Typical relation to drainage pH:

- Saline Drainage
- Acid Rock Drainage
- Neutral Mine Drainage
- Saline Drainage

Typical drainage characteristics:

- Acid Rock Drainage:
  - Strongly acid to alkaline pH
  - Low to moderate metals
  - May have elevated zinc, iron, manganese, and mercury
  - Tends to moderate sulfate
  - Treat for metal and sometimes sulfate removal

- Neutral Mine Drainage:
  - Neutral to slightly alkaline pH
  - Low metals
  - May have moderate oxidation
  - Tends to moderate sulfate

- Saline Drainage:
  - Saline to alkaline pH
  - Low metals
  - May have moderate oxidation
  -Tends to moderate sulfate
  - Treat for sulfate and sometimes metal removal

Diagram showing various stages and regions related to acid rock drainage.
The Global Alliance

- Acid Drainage Technology Initiative
- PADRE
- CNAMD
- INAD
- MEND
- SANAP
- Water Research Commission
- SMI Knowledge Transfer
ADTI - Metal Mining Influenced Water Workbooks
Sulfate Treatment Workshop

- 120 delegates from 5 countries
- 1 1/2-day program
- 22 presentations
- 5 breakout sessions
- Tour of Kennecott RO plant
7th AMD Workshop - Darwin

- Dr. Bruce Kelley - Elephant in the Room
- Mine Waste Management
- Ad hoc Committee & SMIKT proposal submitted to INAP
Soil Cover Guidance Document

Context for Cover Design & Performance
  Climate
  Hydro-geological Setting
  Materials
  Vegetation
Design Methodology
Closure Objectives
Cover Systems
Water Management Systems
9th ICARD - Ottawa

- 526 delegates from 19 different countries
- 3-day technical program
- 127 presentations & 43 posters
- 8 short courses - 250 participants
- Trade show with 25 exhibitors
INAP’s Path Forward Symposium

- Held at 9th ICARD in Ottawa, Canada – 21 May 2012
- 17 presentations on innovative ARD technologies
- Over 70 international participants
- Focus groups
  - Biogeochemical processes
  - Mine waste management
  - Innovative treatment technologies
  - Stakeholder engagement
- Summary of findings
10th ICARD – Santiago

- April 20-25, 2015
- Short Courses – April 20-21
- Technical Meeting – April 22-24
- Field Trip – April 25
Case Study Competition

- Sponsored by INAP and the Global Alliance
- Awarded at the 10th ICARD
- Reclamation, Treatment, Mitigation, Prevention
- Strong Learning Tool
- Identify Lessons Learned
- Illustrate Best Practice
Where Do We Go From Here

- INAP is focusing on capacity building particularly in developing mining regions
- Enhancing capacity of all stakeholders
- What more needs to be done?
- How should we proceed?
- With whom should we partner?
Conclusions

• ARD management is critical to the success and reputation of the mining industry
• Measurement and ongoing improvement of the ARD Management Plan are necessary throughout the life of mine
• Successful implementation of an ARD Management Plan relies on commitment from company management and the systematic use of ARD management tools including partnering with all stakeholders
• ARD Management is improving due to the efforts of all stakeholders including the environmental community