



The International Network for Acid Prevention

An organization of international mining companies that seeks the prevention of acid rock drainage (ARD) and metal leaching in support of responsible mineral development.

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1. Summary

The second half of 2011 will be highlighted by the presentation of four short courses. The first was held in Darwin, NT, Australia in conjunction with the 7th AMD Conference, June 17-22, 2011. A second was at the IMWA Conference in Aachen, Germany, September 4-11, 2011. The third course will be in conjunction with Environmine 2011 in Santiago, Chile, November 23 – 25, 2011. The fourth short course will focus on regulators and will be held in association with the NWMA in Reno, NV, United States, November 28 – December 2, 2011.

INAP with the support of the Global Alliance continues to be actively involved in promoting the GARD Guide with short courses, presentations and workshops on the Guide. INAP has focused its GARD Guide education on developing regions, such as South America, Africa and Asia. INAP is also striving to educate regulators, land managers and other stakeholders by inviting them to participate in GARD Guide presentations and courses. This is specifically being addressed with the Short Course that will be presented in conjunction with the NWMA in Reno, NV.

This year, INAP's main objective is to complete the GARD Guide's first update which we anticipate will be finished by the end of 2011. Following the update, INAP is planning to translate the GARD Guide into Spanish.

2. GARD Guide Update

INAP appreciates the continued support of the Global Alliance (GA) in the promotion of the GARD Guide. During 2011 members of the GA have made/or planned over a dozen presentations or short courses on the GARD Guide. These activities have/or will take place throughout the globe including Australia, Canada, Chile, Germany, South Africa and the United States.

INAP and the GA members have prepared numerous different power point presentations on the GARD Guide. These include presentations on specific GARD Guide chapters that can be organized into short courses of varying topics. They are available for the use of INAP member companies and the Global Alliance members. The GARD Guide team is compiling all of this information. INAP will house these in the "Members' Only" section of the INAP web site.

The first update of the GARD Guide is progressing. INAP is planning to have it available by the end of 2011. The upgrade will focus on chapters 4, 5, 6 and 7. The suggestions, comments and concerns directed toward these chapters have been collected by the GARD Guide Secretariat and submitted to outside consultants who are reviewing and integrating the comments as appropriate to improve the content. The existing GARD Guide team is in the process of reviewing the work submitted to them by the consultants. Chapters being addressed include:

- Chapter 4 – Characterization
- Chapter 5 – Prediction
- Chapter 6 – Prevention and Mitigation
- Chapter 7 – Treatment

In addition to the upgrade of these chapters, we are expanding the number of mini-case studies throughout the GARD Guide. In this revision, a number of “tool boxes” will be included to make the GARD Guide more valuable to mining operators and other stakeholders. These “tool boxes” include:

- Guidance for Exploration Geologists
- Early signs of ARD
- Prevention and Control Flow Sheet
- Cost information
- Guidance for ARD Management Plan
- Audit Protocols for Operating and Closed Mines
- Questions for Consultants

When the first update is completed, INAP will then work on a Spanish translation of the GARD Guide. The executive summary of the GARD Guide has already been translated into Spanish and French.

The GARD Guide Secretariat continues to get requests for a hard copy of the GARD Guide. INAP is reiterating that the Guide is a web-based document free to all users. However, a Golder group in Sweden is working on formatting the GARD Guide into a user-friendly printable document from the internet. Each page of the printable document will be dated so that updates will not create conflicts.

3. 9th ICARD

MEND will host the 9th ICARD in Ottawa, Ontario, Canada on May 21-26, 2012. Gilles Tremblay reported that the Westin Hotel has been secured as the venue. He also informed INAP that this coincides with the annual Tulip Festival in Ottawa so the area should be beautiful.

Short Courses are scheduled for Sunday and Monday, May 20 and 21, 2012 with field trips available on Friday and Saturday, May 25 and 26, 2012. The 9th ICARD committee has received 18 proposals for short courses, many on treatment. The ICARD organizing committee is working to combine many of the related topics. Their choices for the courses will provide an interesting and informative first two days of the conference. Sponsorship is going well and the 9th ICARD is well on its way to meet its monetary goal. The committee is also working to finalize the site visits.

INAP continues to affirm its support to Gilles Tremblay, MEND and the 9th ICARD Committee. INAP is represented on the 9th ICARD Organizing Committee by Lisa Lanteigne (Vale).

4. GARD Guide Presentations during the 2nd Half of 2011

7th Australian Workshop on Acid and metalliferous Drainage (AMD) - Darwin, NT, AU. June 2011. More than 150 mining industry environmental specialists, geochemists, leading researchers, consultants and regulators from around the world gathered to explore emerging trends and issues related to AMD assessment and remediation. Following the workshop, two busloads of attendees participated in the site visits to Rum Jungle and Newmont's Woodcutters mine sites.

- Short Course on the GARD Guide
 - Presenters included: Ward Wilson - University of Alberta, Alan Robertson – RGS Environmental Pty, Jeff Taylor – Earth Systems, Greg Maddox – Golder, Dave Salmon – Golder, Terrence Chatwin – INAP
- Presentations by representatives of INAP member companies
 - Bruce Kelley, Rio Tinto – HSE Chief Advisor Environment, INAP Board Chairman
 - Keynote Address: Implementing AMD Risk Reviews Across Global Operations
 - Suzanne Davis-Hall, Newcrest Mining Ltd.
 - Pre-Feasibility Risk Assessment: Minimizing the Potential of Acid and Metalliferous Drainage During Operations and Closure
 - Terrence Chatwin – INAP Technical Manager
 - Keynote Address: INAP's GARD Guide – An Update on Implementation and Rollout
- Presentations by representatives of the Global Alliance
 - Dr. Wen Shen Shu – The Progress of CNAMD in Asia
 - Dr. Issi Iskandar – Acid Mine Drainage Management in Indonesian Mine

IMWA Conference - Aachen, Germany, September 2011.

- A short course on the GARD Guide was presented and garnered good reviews.
- Rens Verburg (Golder) gave a plenary address at the conference to over 200 people and included information on the GARD Guide.
 - It was well received and provided excellent exposure for the Guide
 - Many of the attendees had not been aware of the GARD Guide prior to Ren's presentation.

World Gold 2011 – 3rd International Conference, Montreal, Quebec, CA, October 2011

- Representatives of INAP member companies and other mining companies spoke on ARD issues and how the GARD Guide is being utilized to address these problems.
 - Bill Williams, VP Environment , Barrick Gold
 - How Barrick is integrating elements of the GARD Guide into the Barrick Environmental, Health and Safety program

- Rich Borden, General Manager, Environment, Rio Tinto Copper Group
 - Rio Tinto's approach to ARD prevention and mine closure using examples from the Barneys Canyon gold mine and Diavik diamond mine
- Charles Bucknam, Senior Consultant, Newmont Gold
 - Testing and analytical methods to more accurately predict ARD
- Jim Robertson, VP Environment and Sustainability , Detour Gold
 - Engaging stakeholders in the environmental planning and closure processes

5. Global Alliance

INAP's profile continues to grow internationally. The Global Alliance (GA) is an important part of this growth. The GA is key to having the GARD Guide promoted in their areas of the world. INAP reiterates that the success of the GARD Guide is dependent on its being used on the local level. During the last two years, the GA has added 3 new members for a 60% increase of membership. Thanks to INAP and GA members who were instrumental in this growth.

Global Alliance Activity Reports (as reported at the May 2011 GA Meeting)

- **ADTI:** Charles Bucknam
 - Progress is being made on all of the workbooks. They are hopeful that the complete series will be available from SME in summer of 2012.
 - An additional volume on ASTM methods and standards applicable to ARD put together by Charles Bucknam and ASTM is available through ASTM on their publications website.
 - In addition to the Pit Lakes workbook volume, ADTI-MMS is involved with the Pit Lakes Database project being performed by SUNY Oneonta with INAP funding.
 - ADTI/MMS has been helping where it is able to promote the GARD Guide and incorporate the Guide concepts partially or wholly into technical and trade meetings. Additional venues for short courses always are under review. The Spanish version of the Executive Summary also has been distributed to the ADTI/MMS membership list, which includes part of the ADTI-Coal Sector leadership.
 - ADTI sponsored a technical session at the 2011 SME Annual meeting. In 2012 they are sponsoring a session on ARD.
- **CNAMD:** Wen-Shen Shu
 - Presentation at the 7th Australia AMD Workshop on the progress of CNAMD in Asia
 - AMD Workshop planned for November of 2012 which will include a GARD Guide Short Course

- **INAD:** Rudy Sayoga Gautama
 - Presentation by Dr. Issi Iskandar at the 7th Australia AMD Workshop on Acid Mine Drainage Management in Indonesian Mines
 - AMD workshop planned for February of 2012 which will include a GARD Guide Short Course

- **MEND:** Gilles Tremblay
 - Gilles Tremblay and his committee continue to prepare for the 9th ICARD scheduled for May 21-26, 2012.
 - Workshops for the last quarter of 2011
 - Tailings and Mine Waste - November 6-9, 2011. Vancouver, British Columbia, Canada.
 - SYMPOSIUM 2011 Mines and the Environment - November 6-9, 2011. Rouyn-Noranda, Quebec
 - Enviromine 2011 - November 23-25, 2011. Santiago, Chile
 - 18th Annual British Columbia - MEND ML/ARD Workshop
 - November 30 - December 1, 2011. Vancouver, British Columbia, Canada.

- **SANAP:** Flavio Vasconcelos
 - Creation of SANAP website: www.sanap.com.br/plus
 - Planning an event for the second semester of 2011.
 - GARD Guide short course – EnviroMine 2011 – Santiago, Chile – November 2011.
 - Short Course in Belo Horizonte – July 2012

- **PADRE:** Adam Jarvis
 - The new board has met 4 times thus far in 2011.
 - PADRE held a meeting at the IMWA conference in Aachen, Germany – September 2011.
 - Most PADRE members are from the UK or Germany. An effort is being made to identify interested people and spread information about PADRE. To this end, a power point presentation has been created to be used to disseminate the PADRE initiative and its ongoing development.
 - An update of the former PADRE website is ongoing and should be finished before the end of 2011.

- **SMIKT:** Bruce Barrie
 - 6 workshops during the second half of 2011
 - Adelaide, SA – August 2011
 - Perth, WA – September 2011
 - Brisbane, QL – October 2011

- Mackay, QL – October 2011
 - Perth WA – November 2011
 - Brisbane, QL – December 2011
 - 7th Australian Acid and Metalliferous Drainage (AMD) Workshop – **Darwin**
 - Short Course on the GARD Guide
 - ❖ Presenters included: Ward Wilson - University of Alberta, Alan Robertson – RGS Environmental Pty, Jeff Taylor – Earth Systems, Greg Maddox – Golder, Dave Salmon – Golder, Terrence Chatwin – INAP
 - Presentations by representatives of INAP member companies
 - ❖ Bruce Kelley, Rio Tinto – HSE Chief Advisor Environment, INAP Board Chairman
 - ✚ Keynote Address: Implementing AMD Risk Reviews Across Global Operations
 - ❖ Suzanne Davis-Hall, Newcrest Mining Ltd.
 - ✚ Pre-Feasibility Risk Assessment: Minimizing the Potential of Acid and Metalliferous Drainage During Operations and Closure
 - ❖ Terrence Chatwin – INAP Technical Manager
 - ✚ Keynote Address: INAP’s GARD Guide – An Update on Implementation an Rollout
- **WRC:** Jo Burgess
 - 3 publications in first part of 2011
 - Symposium on “The Impending Threat of Acid Mine Drainage” in November 2011.

6. **Operating Committee Chair Report – Dan Ramey (Freeport McMoRan)**

- The GARD Guide continues to be the primary focus of INAP during 2011.
 - Dissemination worldwide of the GARD Guide and its information to stakeholders and interested parties.
 - Updating the GARD Guide in response to comments and suggestions collected since 2009.
 - Up-grade should be completed and ready for redistribution by November 2011.
 - Translation of the GARD Guide into Spanish following the up-grade. The executive summary has already been translated into Spanish and French.
- During 2011 sixteen talks, workshops and short courses have been presented or are planned by INAP and Global Alliance personnel worldwide.
- INAP continues to support the following projects:
 - Modeling Workbook – ADTI
 - Diavik Country Rock Instrumented Pile Monitoring – U of Waterloo, U of Alberta, U of British Columbia, MEND
 - Pit Lake Data Base Development – State University of New York – Oneonta

7. Technical Manager's Report – Terrence Chatwin

- INAP's priority for 2011 is to complete the first up-grade of the GARD Guide.
- INAP plans to promote the GARD Guide in developing regions with a short course in Santiago, Chile in November of 2011. Courses in Brazil and China are in the planning for 2012.
- INAP is considering the establishment of South American hubs with INAP members in both Chile and Brazil. This is subject to further details being provided to, and agreed by, the Board.
- The GARD Guide EduMine course is on the internet.
 - Currently about 40 people are taking the course.
 - EduMine is negotiating with the University of British Columbia to add the GARD Guide course to its mining certificate program.
- INAP will have a Board, OpCom and Global Alliance meetings in conjunction with the NWMA meeting in Reno, Nev. at the end of November. We will present a GARD Guide short course for stakeholders, regulators and land owners at that time.
- The Pit Lakes Data Base study is up on the internet. The investigators would like INAP companies' input. Terry will send the web address, user name and password. This test site is specifically for INAP members and the data base developers.
- The 9th ICARD will be held in May of 2012 in Ottawa, Canada.

8. Up-Coming Events

Don't miss the following upcoming meetings that relate to acid drainage:

[Tailings and Mine Waste](#)

November 6-9, 2011. Vancouver, British Columbia, Canada.

[SYMPOSIUM 2011 Mines and the Environment](#)

November 6-9, 2011. Rouyn-Noranda, Quebec

[Enviromine 2011](#)

November 23-25, 2011. Santiago, Chile

[Cyanide Management in the Gold Industry](#)

November 29-30, 2011, Perth, Western Australia

[NWMA North West Mining Association Rocks to Riches 2011](#)

November 28 - December 2, 2011. Sparks, Nevada, USA.

[18th Annual British Columbia - MEND ML/ARD Workshop](#)

November 30 - December 1, 2011. Vancouver, British Columbia, Canada.

[SME Arizona Section](#)

December 5, 2011. Tucson, Arizona, USA.

Value Creation in Mining by Optimal Development of Mineral Resources

December 5-6, 2011. Brisbane, Queensland, AU

9th ICARD International Conference for Acid Prevention

May 20-26, 2012. Ottawa, Ontario, Canada.

9. CD Proceedings of Past Events

A copy of the following CDs will be available for members at the upcoming OpCom Meeting in Reno, NV. If you will not have a representative at the meeting, please contact Andrea Chatwin if you desire a copy of these CDs.

Proceedings of the 12th Annual British Columbia – MEND ML/ARD Workshop – Challenges in the Prediction of Drainage Chemistry – February 2006

Proceedings of the 13th Annual British Columbia – MEND ML/ARD Workshop – Challenges with Open Pits and Underground Workings – February 2007

Proceedings of the 14th Annual British Columbia – MEND ML/ARD Workshop – Challenges in Collection and Treatment of Mining Drainage – February 2008

Proceedings of the 15th Annual British Columbia – MEND ML/ARD Workshop – The Management of Tailings and Tailings Impoundments – February 2009

Proceedings of the 16th Annual British Columbia – MEND ML/ARD Workshop – Soil, Geomembrane and Non-Traditional Dry Covers – February 2010

Diavik Waste Rock Project – Publications 2006 to 2009