

Personal Observations from a Long Time ICARD Attendee (1991)

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Globalization of Passive Treatment: Presentations from New Countries

- **1991-1994: Colorado, Pennsylvania, & West Virginia**
- **1997: Canada & UK**
- **2000: Other EU countries**
- **2003: South America & South Africa**
- **2006: New Zealand**
- **2009: All Continents are represented**



Reinvention of the Wheel

- **Many presentations are going over scientific concepts and design issues that have been previously studied.**
- **Our fault: published most of our findings in proceedings that are difficult to obtain.**
- **Good: Complex processes are occurring & people need to restudy the fundamentals to obtain a good understanding of what is going on.**
- **Suggestion: Intercontinental partnerships to help advise on research.**



Bio-Engineered Systems

In acidic systems: pH 3 - 4

- **Mark Dopson: Oxidation of reduced sulfur species ($S_2O_3^{=}$) in process waters.**
- **Barrie Johnson: Using a sulfate reducing bacterial consortium found in Spain to develop a treatment process that works on pH 3 waters.**



Hot Spots



Big News

- **Rens Verburg discovers Wikipedia, but then the product is called GARD Guide. How about being more creative, like Gardipedia or Googard?**



Lot's of Hot Air in Waste Rock Piles

- **Milczarek finds 55^o- that's C, not F.**
- **Not as much hot air in the Blowes' group piles. That's surprising, I thought Univ. of Waterloo invented hot air.**
- **Above the Arctic Circle, they make tailings popsicles.**



Passive Treatment News

- **Peat and pig manure are the secret ingredients in Finland.**
- **Jim Gusek cannot remove noble gases from ARD.**
- **Ecole Polytechnique Montreal beats out Cardiff Univ. for the Nobel Prize in the mathematics of passive treatment.**



ANP / APP Update, Direct from the Boxing Ring

- **This subject still generates more arguments than other topics.**
- **ASTM standards have been developed.**
- **Still are duels over interpretation of results and which test releases what constituents.**
- **All agreed to settle disputes by a football match. But then a fight arose over whether this should be American or European football.**



Waste Management Area

Paste Covers & Paste Rock Session

- **Rens Verburg can't walk on water but he can walk on jello.**
- **Don't let Ward Wilson bake a chocolate cake.**





Thanks to the
Organizing
Committee &
Skelleftea for an
excellent
conference in a
beautiful location



**See you in
Canada!!**

