Bedrock Aquifer Workshop
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John E. Vidumsky, P.E.

DuPont

Corporate Remediation Group

SOME REAL DATA
CONCENTRATIONS IN **PPM**

SITE	TCE	c-DCE	VC
Kelly AFB LF-1, TX	88	480	70
Cape Canaveral, FL	270	160	35
DOE Pinellas, FL	1,700	210	130
Auburn, NY	800	430	100
Niagara Falls, NY	38	780	72

Some Observations Since 1985

- Much of what we thought we knew about groundwater remediation turned out to be wrong, including….
  - Chlorinated solvents don't biodegrade
  - Most plumes could be remediated in a reasonable time frame through pumping
- Things turned out to be much more complex than we thought
  - Finding and removing DNAPL, sources

YEAR 2000 OBSERVATIONS

- Many thought we'd be largely done by now
- On a the bright side, we are on a very steep part of the learning curve!
  - Plumes as multi-component systems
  - Microbial ecology and metabolism in aquifers
  - Permeable reactive barriers / Zero valent iron
  - Modeling advances

Some of Today's Buzz-Words

- Geochemistry
- Redox potential
- Electron donors, receptors
- Matrix diffusion
- Plumes in steady state
- Reductive dechlorination
- Source control

Objectives for Remediation Session

- Ascertain the State of the Practice of bedrock aquifer remediation in year 2000
- Share key learnings from successes
  - What worked under what circumstances and why
  - Applicability to other sites
- Share key learnings from "works in progress"

Presenters and Case Studies

- Kent Sorenson - Lockheed Martin Idaho
  - Enhanced biological reductive dechlorination of chlorinated solvents in a bedrock aquifer
- Paul Mazierski - DuPont
  - Pump and treat experience at the Necco Park Superfund Site
- Todd Rees - Golder Associates
  - Natural containment remedy at the Berks County Landfill Superfund Site

Guidelines for Discussion

- Keep an open mind
  - Much of what we think we know today will likely turn out to be incomplete
- Please participate
  - Everybody's experience and input is valuable
- Have fun!