Introduction to Monitored Natural Attenuation for Contaminated Site Remediation and Management

24 October 2011

The use of monitored natural attenuation (MNA) as a remediation and/or site management approach requires a sound understanding of natural attenuation mechanisms in order to evaluate their potential efficacy in achieving remedial goals.Many regulatory agencies recognize MNA as a viable remediation or management approach, but this alternative must be supported by adequate evidence of its effectiveness. Such evidence requires adequate site characterization to determine solute plume behavior and includes an evaluation of natural attenuation processes, making realistic estimates of attenuation rates and source decay rates, and designing an adequate monitoring program to show that natural attenuation is occurring as expected.

The one day course will provide an introduction to the theory, concepts and application of monitored natural attenuation and enhanced bioremediation for groundwater remediation and management relevant to members of ACLCA. The course will contain a mix of theory and practical application, using industry relevant examples and case studies.

The education level for the course is intermediate. Participants should have a basic understanding of hydrogeology, an understanding of contaminant fate and migration, and some experience with remediation. This course is intended for personnel involved with writing and implementing regulations, hydrogeologists, environmental engineers, microbiologists, project managers, graduate students, and others involved with contaminated site restoration.

Presenters

Todd Wiedemeier
President and Technical Director of T.H. Wiedemeier & Associates, Evergreen, CO

Zach Dickson
Senior Consultant of T.H. Wiedemeier & Associates, Evergreen, CO

Course Venue

CQ at Karstens

123 Queen St, Melbourne, Vic

cqfunctions.com.au

Course Fees

ACLCA members $600 pp (incl GST)

$500 for early-birds registering before 7 September 2011

The cost for non-members is $700 pp (incl GST) and $600 for early-birds

The course includes course notebook, certificate of attendance and full catering during the course (morning and afternoon teas and lunch).
Register online at www.aclca.org

Contact information

For more information contact Louisa Nicholls of ACLCA Vic on 03 9509 5949 or email: aclcavic@ozemail.com.au

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Course Outline and Schedule

7:30 - 8:00 Registration

8:00 - 9:00 Overview of Natural Attenuation as a Remediation Approach (S1-THW)

» Overview of natural attenuation
» Geochemistry and microbiology
» Basic components of natural as a remediation approach

9:00 - 9:30 Source Zones (S2-THW)

» Sources and nature of releases
» Relation of solute plumes to hydrogeology
» Dynamics of solute plumes in groundwater
» Strength and duration of NAPL sources

9:30 - 10:00 Non-Destructive Attenuation Mechanisms (S3-WZD)

» Transport Processes - advection,diffusion,dispersion
» Sorption and volatilization

10:00 - 10:15 Break

10:15 - 12:00 Destructive Attenuation Mechanisms

10:15 - 11:00 Natural Biodegradation of Fuel Hydrocarbons (S4-WZD)

» Hydrocarbon oxidation
» Aerobic and anaerobic degradation
» Biodegradation rate constant estimation

11:00 - 12:00 Natural Biodegradation of Chlorinated Solvents (S5-THW)

» Reductive dechlorination
» Patterns of chlorinated solvent biodegradation

12:00 - 1:00 Lunch

1:00 - 2:30 Lines of Evidence Used to Evaluate Natural Attenuation (S6-THW/WZD)

» Loss of contaminants at field scale
» Geochemical and biochemical indicators
» Microbiological laboratory data
» Data requirements

2:30 - 2:45 Break

2:45 - 4:00 Site Characterization for Evaluating Natural Attenuation (S7-WZD)

» Approaches to site characterization
» Field parameters and methods
» Laboratory parameters and methods
» Data interpretation
» Evaluating evidence of natural attenuation

4:00 - 5:00 Developing Long-Term Monitoring Plans for Monitored Natural Attenuation (S8-THW)

» Monitoring well placement
» Sampling frequency
» Analytical protocol
» Data interpretation and presentation

5:00 - 5:30 Question and Answer Session