



GROUNDWATER RESOURCES ASSOCIATION  
of California

Cooperators

Air Force Center for Engineering and the Environment  
Department of Toxic Substances Control

The 25th Symposium in GRA's *Series on Groundwater Contaminants*

# “Compounds of Emerging Concern in Groundwater”

February 7-8, 2012  
Hilton Concord Hotel, Concord, CA

## PROGRAM AGENDA

### Day 1, February 7, 2012

- 11:00 am Registration
- 1:00–1:05 pm **Welcome and Program Overview**  
Sarah Raker, AMEC, GRA President  
Dr. Sam Brock, AFCEE, Symposium Co-Chair  
Dr. Rula Deeb, ARCADIS U.S., Inc., Symposium Co-Chair
- Session 1: Compounds of Emerging Concern in Groundwater: Key Technical and Regulatory Challenges**
- Moderator(s): Brian Lewis, Department of Toxic Substances Control  
Thomas Johnson, ARCADIS U.S., Inc.
- 1:05–1:30 pm *Overview of Technical Challenges Posed by Key Emerging Contaminants in Groundwater: An Air Force Perspective*  
Dr. Sam Brock, AFCEE
- 1:30–1:55 pm *U.S. EPA's Approach to the Development of New Analytical Methods for Contaminants of Emerging Concern in Drinking Water*  
Dr. Jody Shoemaker, U.S. EPA, National Exposure Research Laboratory

- 1:55-2:20 pm *Emerging Contaminants and Drinking Water: A State Perspective*  
Dr. David Mazzer, Division of Drinking Water and Environmental  
Management, California Department of Public Health
- 2:20-2:55 pm *Prospects for Possible U.S. EPA Drinking Water Regulations for  
Groundwater Contaminants*  
Dr. Bruce Macler, U.S. EPA Region 9
- 2:55-3:20 pm *Novel Legal Liability Issues Associated with Emerging Compounds of  
Concern in Groundwater*  
Christopher Berka, Bingham McCutchen LLP

**3:20-3:35 pm Break in Exhibit Area**

**Session 2: Chromium: Site Investigation and Remediation**

Moderator(s): Dr. Christopher P. Higgins, Colorado School of Mines  
Dr. Bruce Macler, U.S. EPA Region 9

3:35-4:00 pm *Utilizing 53 Cr Isotopic Compositions to Delineate Native and  
Contaminated Groundwater, Mojave Desert, California*  
Dr. John Izbicki, US Geological Survey

4:00-4:25 pm *Identifying the Potential Source of Chromium(VI) at a Sacramento  
Valley Site and its Remediation with In-Situ Biological Reduction*  
Anja Verce, Weiss Associates

4:25-4:50 pm *Synergistic Application of Innovative In-Situ and Ex-Situ Treatment  
Technologies of Hexavalent Chromium Removal from Groundwater*  
Eric Rowney, MWH

4:50-5:15 pm *Remediation of Hexavalent Chromium in Groundwater at Hinkley, CA*  
Kevin Sullivan, Pacific Gas & Electric

**5:15-5:30 pm Flash Poster Presentations - Students**

**5:15-6:45 pm Reception and Poster Presentations – Exhibit Hall  
Student Paper Competition Judging**

## Day 2, February 8, 2012

**7:30 am**                    **Registration/Continental Breakfast**

**Session 3:            Hexavalent Chromium: Analytical Issues and Ex-Situ Treatment**

Moderator(s):        Kevin Sullivan, Pacific Gas & Electric

8:00–8:25 am        *Hexavalent Chromium: Occurrence and Analysis*  
Dr. Andrew Eaton, MWH

8:25–8:50 am        *Advanced Water Treatment Research Program for Hexavalent Chromium in Drinking Water*  
Dr. Nicole Blute, Malcolm Pirnie, The Water Division of ARCADIS U.S.

**Session 4:            1,4-Dioxane**

Moderator(s):        Dr. Shaily Mahendra, University of California, Los Angeles  
Dr. Andrew Eaton, MWH

8:50–9:15 am        *Emerging Aspects of 1,4-Dioxane: 2012 Update on Occurrence, Toxicology, Regulation and Advances in Treatment Strategies*  
Thomas Mohr, Santa Clara Valley Water District

9:15–9:40 am        *Genomic Analysis of Pseudonocardia Dioxanivorans CB1190 for 1,4-Dioxane Degradation Biomarkers*  
Phillip Gedalanga, University of California, Los Angeles

9:40–10:05 am      *Comparison of Site-Specific Biodegradation Rates for MNA and Active Bioremediation of 1,4-Dioxane and TCE*  
Rebecca Mora, AECOM

**10:05–10:20 am**    **Break – Exhibit Hall**

**Session 5:            Perfluorinated Compounds**

Moderator(s):        Dr. Ron Porter, Noblis  
Elisabeth Hawley, ARCADIS U.S., Inc.

10:20–10:45 am      *A Decade of Perfluorinated Chemical Investigations in Minnesota*  
Virginia Yingling, Minnesota Department of Health

10:45–11:10 am      *Sorption of Perfluorochemicals to Matrices Relevant to Sites Impacted by Aqueous Firefighting Foams*  
Jennifer Sepulvado, Colorado School of Mines

11:10–11:35 am *International Emergence of Perfluoroalkyl Organic Compounds as a Contaminant of Concern: An Australian Perspective*  
Dave Woodward, AECOM

**11:35–12:35 pm Lunch – Announcement of Student Paper Competition Winners**

**Session 6: Nanomaterials**

Moderator(s): Dr. Amoret Bunn, Pacific Northwest National Laboratory

12:35-1:00 pm *Is That a Nanomaterial? Why Should I Care?*  
Jeffrey Wong, Department of Toxic Substances Control

1:00–1:25 pm *Interactions of Copper Nanoparticles with Freshwater Algae*  
Dr. Shaily Mahendra, University of California, Los Angeles

1:25–1:50 pm *Emerging Patterns in Fate and Transport of Metal and Metal Oxide Nanoparticles*  
Arturo Keller, University of California, Santa Barbara

**Session 7: 1,2,3-TCP and PPCPs**

Moderator(s): Dr. Nancy Ruiz, Naval Facilities Engineering Command, Engineering Service Center

1:50-2:15 pm *Recent Advances in Remediation Technologies for 1,2,3-Trichloropropane*  
Dr. Eric Suchomel, Geosyntec Consultants, Inc.

2:15–2:40 pm *Occurrence and Removal of Pharmaceuticals and Personal Care Products (PPCPs) with a Focus on Groundwater*  
Dr. David Hokanson, Trussell Technologies

**2:40–3:00 pm Break – Exhibit Hall**

**Session 8: Compounds of Emerging Concern: Other**

Moderator(s): Dr. Michael Kavanaugh, Geosyntec Consultants, Inc.  
Rebecca Mora, AECOM

3:00–3:25 pm *Recycled Water Irrigation and Groundwater Study*  
Henry Barrientos, Santa Clara Valley Water District; and J. Wesley Hawthorne, Locus Technologies

3:25–3:50 pm *Enhanced Sulfolane Removal Using Biological Granular Activated Carbon*  
Srinivasa Varadhan, ARCADIS U.S., Inc.

- 3:50–4:15 pm      *Understanding the Role of Biodegradable Carbon in Attenuating Chemicals of Emerging Concern (CECs) During Managed Aquifer Recharge by Coupling Advanced Chemical and Metagenomic Characterization Tools*  
Alidina Mazahirali, King Abdullah University of Science and Technology
- 4:15-4:40 pm      *Contaminant Emergence from the Energy Sector*  
Dr. James Hunt, University of California, Berkeley
- 4:40-5:00 pm      Closing Remarks**  
Rula Deeb, ARCADIS U.S., Inc.

## **POSTER PRESENTATIONS AND STUDENT COMPETITION POSTER SESSION**

*(Available for viewing during the entire Symposium)*

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1. *Reliable Analysis of Emerging Contaminants in Natural Mineral Water from a Unique Protected Groundwater Aquifer*  
Lodovico di Gioia, Danone Research, R&D Water Division
2. *In-Situ Reductive Remediation of Hexavalent Chromium at Two Sites in Northern California*  
John Farr, Farr Associates
3. *Quantification of Precursors to Perfluoroalkyl Carboxylates and Sulfonates in Aqueous Film Forming Foams (AFFF) Used in Military Firefighting*  
Erika Houtz, University of California, Berkeley
4. *Ozone-Peroxide Advanced Oxidation for the Remediation of 1,4-Dioxane Impacted Groundwater*  
Michael Jaubert, APTwater
5. *Classification and Identification of Endocrine Disrupting Chemicals in Ground Water Through Bioassay in Quart Medaka*  
Tomofumi Kurobe, University of California, Davis
6. *Stable Carbon Isotope Enrichment of 1,4-Dioxane During Aerobic Biodegradation*  
Peerapong Pornwongthong, University of California, Los Angeles
7. *Removal Kinetics of Chemicals of Emerging Concern (CECs) During Artificial Recharge and Recovery*  
Julia Regnery, Colorado School of Mines
8. *Tracking Emerging Contaminants Using Cloud Computing Environmental Data Management for Los Alamos National Laboratory*  
Sean Sandborgh, Locus Technologies

9. *Occurrence and Fate of Perfluorochemicals in Soil Following the Land Application of Municipal Biosolids*

Jennifer Sepulvado, Colorado School of Mines

10. *Biotransformation of Perfluorooctanoic Acid (PFOA) by Environmental Microorganisms*

Nancy Tseng, University of California, Los Angeles