

**2015-Contaminated Site Management in Europe:
Sustainable Remediation and Management of Soil,
Sediment and Groundwater
(CSME-2015)**

FINAL PROGRAM

Brussels Marriott Hotel, Belgium

October 19-21, 2015

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- Eng. Mattias Verbeeck**, Antea Group, Belgium
- Dr. Christos Varsakelis**, Universite Catholique de Louvain, Belgium
- Dr. Marc Vinas**, IRTA, Spain
- Eng. Olga Vounaki**, ERM Brussels, Belgium
- Mr. Johan Walewijns**, Vlaamse Confederatie Bouw, Belgium

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MONDAY, OCTOBER 19, 2015

7:30 – 9:00 a.m. **Registration**

Session 1: Sustainability Driven Approaches for Decontamination – I

9:00 – 9:20 a.m. **The Regulatory Basis for Sustainable Remediation in the European Union and United Kingdom**

Richard J.F. Bewley & Rick Parkman

AECOM Infrastructure & Environment UK Limited, Manchester, UK

9:20 – 9:40 a.m. **Traceability: A Tool for the Valorization of Excavated Soils in the Flemish Region**

Marc Dillen and Andy Heurckmans

Grondbank, Belgium

9:40 – 10:00 a.m. **Remediation in China**

John U. Bastrup and Cheng Jie

Geo, Lyngby, Denmark

10:00 – 10:20 a.m. **Development of Early-warning Lights Classification Management System for Industrial Parks in Taiwan**

Liang-Li Chang¹, Nien-Ho Ma¹, Kuo-Sheng Tsai¹, Chia-Hsin Li² and

Ying-Ting Kuo²

¹Soil and Groundwater Pollution Remediation Fund Management Board, Environmental Protection Administration, Executive Yuan, ROC

²Sinotech Engineering Consultants, Ltd., Taipei, Taiwan

10:20 – 10:40 a.m. **Coffee Break**

Session 2: Remediation via Physical and Thermal Techniques-I

10:40 – 11:00 a.m. **Petroleum Hydrocarbon Mass Removal using Reagent Based Enhanced Desorption Combined with Physical Recovery Techniques**

Jeremy Birnstingl¹, Gareth Leonard² and Ben Mork³

¹Regenesis, Bath, United Kingdom; ²Regenesis Ltd; ³Regenesis, San Clemente, CA, USA

11:00 – 11:20 a.m. **Successful Application of Air Sparge / Soil Vapor Extraction Remediation in a Drinking Water Aquifer at a Shopping Center, California, United States of America**

Mark S. Dockum

GHD, San Francisco, California, USA

- 11:20 – 11:40 a.m.** **From Red Hot To Shivering Cold: In-Situ Soil Remediation with Electrical Resistance Heating and Vapors Treatment by Cooling**
Marco van den Brand
 HMVT, The Netherlands
- 11:40 – 12:00 noon** **Enhanced Oil Recovery (EOR) with Thermal Conductive Heating (TCH) and Solvent Soil Flushing at the Former Low Temperature Carbonization Plant Deuben, Saxony-Anhalt, Germany**
Uwe Hiester¹ and Ronald Giese²
¹reconsite GmbH, Fellbach, Germany
²GFI Grundwasser-Consulting-Institut GmbH, Dresden, Germany
- 12:00 – 1:30 p.m.** **Lunch**
- 1:30 – 1:50 p.m.** **An Integrated Multiphase Extraction, Soil Vapor Extraction, and Air Sparging Approach for Treatment of LNAPL Impacts**
Omer J. Uppal, Christopher McMahon, Matthew Ambrusch, Nadira Najib
Steve Ciambuschini, Imtiyaz Khan, and Stewart H. Abrams
 LANGAN, USA
- 1:50 – 2:10 p.m.** **Pilot on Thermal Enhanced SVE of Mercury in Soil and Bedrock under an ongoing Chloro-Alkali Plant**
Eric Bergeron¹, Åke Eriksson² and Lena Torin², Berndt-Olof Jorlöv and Ingela Frössling³
¹Golder Associates, Montreal, QC, Canada
²Golder Associates, Gothenburg, Sweden
³NOVYN Sverige, Stenungsund, Sweden

Session 3: In-Situ Bioremediation-I

- 2:10 – 2:30 p.m.** **Microbial Surfactants for Soil Remediation Processes**
Vladimir Jirku¹, Richard Jezdik¹, Jan Masak¹ and Tomas Rezanka²
¹University of Chemical Technology, Prague, Czech Republic
²Institute of Microbiology, Academy of Sciences of the Czech Republic
- 2:30 – 2:50 p.m.** **Practical Issues and Lessons Learned Regarding the Installation and Operation of a HGB Cell**
Lars Van Passel¹, Diederik Valcke², Tom Claes³, Luc Lebbe⁴, and Harmien Verstraete⁵
¹RSK Benelux, Belgium; ²Mourik, Belgium; ³LIFE08 ENV/B/000046 LVM-Biocells; ⁴University of Ghent, Belgium; ⁵Avecom, Belgium
- 2:50 – 3:10 p.m.** **Surfactant Enhanced Push-Pull Method for In-Situ Remediation of Petroleum Contaminated Soil and Groundwater**
George A. Ivey
 Ivey International Inc., Surrey, BC Canada

- 3:10 – 3:30 p.m. Coffee Break**
- 3:30 – 3:50 p.m. Modeling of a Biostimulation Cell for the Remediation of a Site Situated on a Groundwater Divide**
Luc Lebbe¹ Lars Van Passel² Harmien Verstraete³, and Tom Claes⁴
¹University of Ghent, Belgium
²RSK, Belgium
³Avecom, Belgium
⁴LIFE08 ENV/B/000046 LVM-Biocells

Session 4: Site Characterization and Remediation-I

- 3:50 – 4:10 p.m. Why High-Resolution Data Sets are Necessary to Assess the Age, Location, and Vapor Intrusion Potential of VOC Sources beneath Buildings**
Craig A. Cox
 Cox-Colvin & Associates, Inc., Plain City, Ohio, USA
- 4:10 – 4:30 p.m. High Resolution Groundwater Flow Diagnostic System for Optimization of In-Situ Site Remediation and Environmental Protection**
Petr Kvapil, Martin Procházka and Tomáš Lederer
 AQUATEST a.s., Praha, Czech Republic
- 4:30 – 4:50 p.m. Improved Geostatistical Estimation of Hydrocarbon Pollution in Urban Soils**
Yvan Assy^{1,2}, Chantal de Fouquet¹, Aurélie Malvoisin², Gaël Plassart²
¹Ecole des mines de Paris - Mines Paris-Tech, centre de géosciences - géostatistique. 35, Fontainebleau cedex, France
²Envisol – Immeuble Le Libéral, Bourgoin-Jallieu, France
- 4:50 – 5:10 p.m. Feedback on 3D Geochemical Modelling of Urban Soils and Subsoils at Quarter to City Scale in Europe**
C. Le Guern
 BRGM, Direction régionale des Pays de la Loire, Nantes Cedex, France
- 5:10 – 5:30 p.m. LNAPL Remediation Using Next Generation In-situ “Trap and Treat®” Technology**
Duane Guilfoil¹ and Palle Ejlskov²
¹AST Environmental, Inc., Midway, Kentucky, USA
²Ejlskov, A/S, Aarhus, Denmark

TUESDAY, OCTOBER 20, 2015

Session 5: In-Situ Chemical Oxidation (ISCO)

- 8:30 – 8:50 a.m.** **PCE Persulfate Oxidation Treatability Study of PCE and Metals Behavior during Oxidation**
Marcos Sillos¹, Silvia Cremonoz Nascimento¹, Luiz Carlos Ferrari¹, Samuel Souza¹, Marco A.F. Locatelli¹, Wilson F. Jardim², Antonio Passarelli¹, and Flavio Lima dos Santos¹
¹ VERT GROUP, Brazil
² Universidade Estadual de Campinas, Brazil
- 8:50 – 9:10 a.m.** **ISCO Technical Developments – Persulphate Catalysis vs. Activation**
J. Birnstingl¹, B. Mork²
¹Regenesis, The Tramshed, Bath, United Kingdom
²Regenesis, San Clemente, CA, USA
- 9:10 – 9:30 a.m.** **ISCO of TCE Impacted Groundwater in Basalt Bedrock through an Enhanced Fracture Network**
Omer J. Uppal, Kyle Warren, Erica Sterzinar and Brian Blum
Langan, Elmwood Park, New Jersey, USA

Session 6: In-Situ Chemical Reduction (ISCR)

- 9:30 – 9:50 a.m.** **Implementation of Zerovalent Iron for Source Zone Treatment via Soil Mixing**
H. Decuyper¹, N. Vermeiren², J. Gemoets³, R. Lookman³, I. Van Keer³, L. Bastiaens³
¹ A+E Consult bvba, Lauwe, Belgium
² Smet F&C N.V., Dessel, Belgium
³ Vito N.V., Mol, Belgium
- 9:50 – 10:10 a.m.** **Site Closure using Enhanced Reductive Dechlorination with Large Diameter Treatment Columns on Two Chlorinated Sites**
Daniel F. Schneider
Terracon Consultants, Inc. Wheat Ridge, Colorado USA
- 10:10 – 10:30 a.m.** **Coffee Break**
- 10:30 – 10:50 a.m.** **Reduction, Adsorption, and Precipitation of Heavy Metals by Elemental Iron, Iron Sulfides, and Related Reactive Minerals**
Alan Seech¹ and Paul Tratnyek²
¹PeroxyChem Environmental Solutions, Corona Del Mar, CA, USA
²OHSU Institute of Environmental Health, Institute of Environmental Health, Oregon

Health & Science University, Portland, OR, USA

- 10:50 – 11:10 a.m.** **Feedback on the Chemical Reduction: Application Modes, Efficiency, Technical Limitations, Compared to Oxidation - Is the Chemical Reduction Ideal for the Treatment of Chlorinated Solvents?**
Christophe Chene¹, Marie-Odile Simonnot², Laurence Muhr², Carole Marcon¹
¹ Soléo Services, Meyzieu, France
² Université de Lorraine, Nancy Cedex, France

Session 7: Delivery Techniques for In-Situ Remediation

- 11:10 – 11:30 a.m.** **Monitoring Injections at In-Situ Remediations by Geoelectrical Methods**
David Hagerberg^{1,2}, Sofia Åkesson¹, Charlotte Sparrenbom¹, Sara Johansson^{2,3}, Torleif Dahlin³
¹Department of Geology, Lund University, Lund, Sweden
²Tyréns AB, Ideon Science Park, Lund, Sweden
³Engineering Geology, Lund University, Lund, Sweden
- 11:30 – 11:50 a.m.** **Innovative Technologies to Deliver Oxygen to Aquifers**
Lorenzo Sacchetti
Europe Middle East and Africa, Carus Europe, Milan, Italy
- 11:50 – 12:10 p.m.** **A New Device for Direct Liquid Injections in Subsoil: Results of a Pilot Test**
Jeroen Vandenbruwane¹, Gwendolyn Derock², Didier Jacques² and Geert Boucneau³
¹Sodecon BVBA, Waregem, Belgium
²Universoil BVBA, Brussels, Belgium
³Universoil BVBA, Wingene, Belgium
- 12:10 – 1:30 p.m.** **Lunch**

Session 8: Risk Assessment

- 1:30 – 1:50 p.m.** **Direct Toxicity Testing for Contaminated Land Management**
Katalin Gruiz
Budapest University of Technology and Economics, Hungary
- 1:50 – 2:10 p.m.** **Method for the Assessment of Risks Due to the Permeation of Organic Contaminants through Polyethylene Drinking Water Pipes**
Piet Otte¹, Martin Schans², Martin Meerkerk² and Frank Swartjes¹
¹National Institute for Public Health and the Environment, The Netherlands
²KWR Watercycle Research Institute, The Netherlands

- 2:10 – 2:30 p.m. Innovative Remediation Technologies Applicable to Sites Polluted by Metallurgical Activities**
Valer Micle¹, Ioana Monica Sur¹, Melania-Nicoleta Boros¹, Vasile Oros², Irina Smical²
¹Technical University of Cluj-Napoca, Cluj-Napoca, Romania
²Technical University of Cluj-Napoca, Baia-Mare, Romania

Session 9: Sediment

- 2:30 – 2:50 p.m. Sediment Transport: From Academic Models to Industrial Tools**
Christos Varsakelis, Davide Monsorno and Miltiadis V. Papalexandris
Université Catholique de Louvain, Louvain-la-Neuve, Belgium
- 2:50 – 3:10 p.m. Design of a Large-scale Remediation Approach of a Heavy Polluted River**
Annemie Boden, Bart Jacobs, Beatrijs Lambié, Mattias Verbeeck
Antea Group Belgium
- 3:10 – 3:30 p.m. Coffee Break**
- 3:30 – 3:50 p.m. Innovative Chemical Treatment of TBT (Tributyltin)-Impacted Marine Sediments: A Bench Scale Study**
George A. Ivey
Ivey International Inc., Surrey, BC, Canada

Session 10: Sustainability- Driven Approaches for Decontamination – II

- 3:50 – 4:10 p.m. Evaluation of Social Aspects within the Sustainability Assessment of Soil Remediation Projects**
Valérie Cappuyns and Lore Vande Cauter
Katholic University of Leuven, Belgium
- 4:10 – 4:30 p.m. Embedding Sustainability in a Practical and Easy Way during the Implementation of Remedial Projects**
Cecile Rao and Thomas De Romagnolim
ERM, Brussels, Belgium
- 4:30 – 4:50 p.m. Cost-Effective Site Remediation Strategies: A Community-Supported Sustainable Model that Works with Even a Limited Budget**
Jymalyn Redmond¹ and James Robinson²
¹2660 EastChase Lane Montgomery AL 36036, USA
²Goodwyn, Mills and Cawood, Inc., Montgomery, AL, USA

4:50 – 5:10 p.m. **Review of Decision Support Tools for Sustainability Assessment of Site Remediation**
Lies Huysegoms, Valérie Cappuyns, Sandra Rousseau
Katholic University of Leuven, Belgium

WEDNESDAY, OCTOBER 21, 2015

Session 11: Site Characterization and Remediation-II

8:30 – 8:50 a.m. **MIP-In - Combined Detection and Treatment of Pollution: A First Large Scale Pilot**
Jan De Vos¹, Leen Bastiaens², Bjørn Hjortshøj Andersen³, Jan Kakučka⁴,
Tim Moerenhout¹, Jeroen Struyf¹
¹ABO-Group; ²VITO; ³Ejlskov, ⁴Dekonta

8:50 – 9:10 a.m. **Large Scale Systematic Mapping and Prioritization of Possible Soil Contaminations – A Method to Protect Drinking Water Resources, Surface Water and Human Health in Denmark**
Thomas Imbert Villumsen and Mie Barrett Sørensen
Region Hovedstaden, Center for Regional Udvikling- Jordforurening, Denmark

9:10 – 9:30 a.m. **Applying the Triad Approach for Effective On-Site DNAPL Characterization and Delineation: A Case Study**
Olga Vounaki, Martin Ohsé, Pierre Procureur
ERM, Brussels, Belgium

9:30 – 9:50 a.m. **Optimizing Reconciliation Quality between Characterization and Remediation Soil Volumes/Masses: Feedback on Real Cases and Key Success Criteria**
Nicolas Jeannée¹, Hélène Demougeot-Renard², Bénédicte Couffignal³, and Rémy Bayard⁴
¹Geovariances; ²eOde; ³Record network; ⁴Record network / INSA-Lyon, Laboratoire LGCIE-DEEP)

Session 12: Remediation via Physical and Thermal Techniques-II

9:50 – 10:10 a.m. **Mixture of High and Low Boiling Compounds in a Mixed Low and High Permeable Setting – Thermal Design Considerations**
Niels Ploug¹, Jesper Holm¹, Max Jensen¹, Steffen Griepke Nielsen², Gorm Heron²
¹Krøger A/S, Denmark; ²TerraTherm Inc., USA

10:10 – 10:30 a.m. **Coffee Break**

- 10:30 – 10:50 a.m. Thermal Desorption Technology for Remediation of Brownfields: Behavior of Various Types of Contaminated Matrices in Vacuum TD Unit**
Ivo Hlásenský, Helena Váňová, Luboš Zápotocký
 Dekonta, a.s., Stehelčevy, Czech Republic
- 10:50 – 11:10 a.m. In-Situ Thermal Remediation (ISTR) with Thermal Conductive Heating (TCH) and Steam Injection during Land Recycling and Beneath Buildings**
Uwe Hiester, Martina Müller
 reconsite GmbH, Fellbach, Germany
- 11:10 – 11:30 a.m. Experimental Investigation on the Physical Removal of Chlorinated Solvents by Adsorption onto PlumeStop™**
F. Arjmand¹, J. Birnstingl¹, M. Petrangeli Papini¹
¹Department of Chemistry, Sapienza University of Rome, Italy
²Regenesis, United Kingdom

Session 13: In-Situ Bioremediation-II

- 11:30 – 11:50 a.m. An Innovation to Increase Rate and Performance of *in situ* Bioremediation: Concept Tests and Full Scale Application Case Studies**
J. Birnstingl¹ and B. Mork²
¹ Regenesis, Bath, United Kingdom
² Regenesis, San Clemente, CA, USA
- 11:50 – 12:10 p.m. Bioaugmentation for the Removal of High Concentrations of CAH in Groundwater**
Harmien Verstraete¹, Tom Claes², Lars Van Passel³, and Luc Lebbe⁴
¹Avecom, Belgium, (tom.claes@ineos.com),
²LIFE08 ENV/B/000046 LVM-Biocells
³RSK Group, Belgium,
⁴Gent University, Belgium
- 12:10 – 1:30 p.m. Lunch**

- 1:30 – 1:50 p.m.** **Biostimulation of Fungal and Eubacterial Autochthonous Communities to Improve Biodegradation of High Molecular Weight PAHs in an Aged Creosote-polluted Soil**
M. Viñas¹, S. Lladó², A. DAnnibale³, M. Petruccioli³, S. Covino², J. Sabaté⁴, and A. M. Solanas⁴
¹ GIRO Joint Research Unit IRTA-UPC, Institute of Research and Technology Food and Agriculture [IRTA], Caldes de Montbui, Spain
² Institute of Microbiology, Academy of Sciences of the Czech Republic, Prague, Czech Republic
³ Department for Innovation in Biological, Agro-Food and Forest systems [DIBAF], University of Tuscia, Viterbo, Italy
⁴ Department of Microbiology, University of Barcelona, Spain
- 1:50 – 2:10 p.m.** **Synergy of Trap&Treat BOS 100® and 3DMe Tackles Large TCE Plume**
Duane Guilfoil¹, Gary Simpson² and Scott Nolan³
¹AST Environmental Midway, KY, USA
²AST Environmental Lexington, KY, USA
³Remediation Products Inc. Golden, CO, USA
- Session 14: Solid Waste, Vapor/Gas Mitigation and Phytoremediation**
- 2:10 – 2:30 p.m.** **A Review of Process and Performance of Coal Combustion Wastes Recycling**
Huseyin Koca¹, Derya Oz Aksoy² and Sabiha Koca²
¹Anadolu University, Porsuk Technical College, Eskisehir, Turkey
²Osmangazi University, Mining Engineering Department, Eskisehir, Turkey
- 2:30 – 2:50 p.m.** **Removal of Metallic Contaminants from Solid Wastes: Closing the Circle**
K. Sniegowski¹, P.-J. D’Huys², Marina Vanhecke², L. Braeken¹
¹ Research Group Lab4U, Faculty of Industrial Engineering, Katholieke Universiteit Leuven, Diepenbeek, Belgium
² Research Group Lab4U, Group Management & Technology, University Colleges Leuven-Limburg, Diepenbeek, Belgium
- 2:50 – 3:10 p.m.** **Design and Performance Evaluation of Vapor Mitigation System for a Large PCE Plume Site**
Omer J. Uppal¹, Matthew Ambrusch¹, Kale Novalis¹, Neil Rivers², Kavitha Subramaniam² and Stewart H. Abrams, P.E.²
¹Langan, Elmwood Park, New Jersey, USA
²Langan, Lawrenceville, New Jersey, USA
- 3:10 – 3:30 p.m.** **Coffee Break**

- 3:30 – 3:50 p.m.** **Alternanthera Bettzickiana (Regel) G. Nicholson: A Potential Phytoremediator of Heavy Metal Contaminated Soils: Growth and Physiological Response**
Shafaqat Ali*, Hafiz Muhammad Tauqeer, Mujahid Farid, Muhammad Rizwan Farid
Government College University Faisalabad, Pakistan
- 3:50 – 4:10 p.m.** **Landfill Gas Mitigation Design Considerations for Site Redevelopment**
Omer J. Uppal¹, Matthew Ambrusch¹, Nadira Najib¹, Kawalpreet Kaur¹, Imtiyaz Khan², Amita Oka², Stewart H. Abrams², Jeffrey F. Ludlow³ and Veronica Tiglao³
¹Langan, Elmwood Park, New Jersey, USA
²Langan, Lawrenceville, New Jersey, USA
³Langan Treadwell Rollo, San Francisco, California, USA
- 4:10 – 4:30 p.m.** **Mannitol Alleviates Chromium Toxicity in Wheat Plants in Relation to Growth, Yield, Stimulation of Anti-Oxidative Enzymes, Oxidative Stress and Cr Uptake in Sand and Soil Media**
Shafaqat Ali*, Saima Aslam Bharwana, Zeenat Siddiqi, Muhammad Rizwan, Mujahid Farid
Government College University Faisalabad, Pakistan
- 4:30 p.m.** **Adjourn**