



**77<sup>th</sup> Meeting of the Petroleum Environmental Research Forum (PERF)**  
Hosted by VITO

**Antwerp (B), 26 – 29 February 2008**

**Program**

**Tuesday, February 26, 2008**

- 14.00 – 17.00: General PERF Board of Directors Meeting (Invitation only)  
19.00: Dinner of PERF Board of Directors in Huis De Colvenier, Antwerp

**Wednesday, February 27, 2008**

- 08.00: Registration  
09.00: Welcome by Dirk Fransaer, Managing Director of VITO  
09.05: Welcome and objectives of the meeting by Todd Ririe, BP and PERF Chair  
09.15: VITO in a nutshell by Dirk Fransaer  
09.45: Brief overview of the next PERF workshop hosted by Total in May by Anne Basseres (Total, France)  
09.55: Modeling of surface water systems by Piet Seuntjens (Antwerp University / VITO)  
10.20: Whole effluent toxicity by Hilda Witters (VITO)  
10.50: Coffee break  
11.15: An Update on Produced Water Treatment Technology Development by James Robinson (BP)  
11.30: Wastewater treatment, MBR technology, and fouling control by Heleen De Wever (VITO)  
12.00: Treated Effluent Water Reuse at the ExxonMobil Antwerp Refinery by Georges De Caluwe (ExxonMobil)  
12.30: Lunch  
14.00: Wastewater and oxidation technology by Peter Cauwenberg (VITO)  
14.30: EU Water Legislation: Issues and Trends by George Stalter (CONCAWE)  
15.00: Biotreatment of Produced Water by Nicolas Lesage (Total)  
15.30: Treatment of Mercury and Arsenic in Produced Water by Thomas Hoelen (Chevron)  
16.00: Summary and close of meeting day  
16.30: Adjourn  
18.00 - 19.00: Reception (offered by VITO) and poster session

## Thursday, February 28, 2008

- 09.00: The Discovery of High Molecular Weight Naphthenic Acids Responsible for Calcium Naphthenate Deposits by Sung-I Johnson (ConocoPhillips)
- 09.30: Use of membrane technology in water treatment by Wim Doyen (VITO)
- 10.00: Impacts from Oil and Gas Produced Water Discharges on the Gulf of Mexico Hypoxic Zone by Jill Kerr (ExxonMobil)
- 10.30: Coffee break
- 11.00: Solvent filtration by Anita Buekenhoudt (VITO)
- 11.30: Supercritical extractions and processes by Luc Van Ginneken (VITO)
- 12.00: Lunch
- 13.30: Arsenic problems and first results of Aquatrain by Ludo Diels (University Antwerp, VITO)
- 13.50: Produced water treatment facing future challenges by Paul Verbeek (Shell)
- 14.20: Energy reduction in wastewater treatment by Ludo Diels (University Antwerp, VITO)
- 14.40: PERF working/discussion groups
- 15.30: PERF Business Meeting
- 16.00: Summary and Close of the meeting day

## Friday, February 29, 2008

- 09.00: Departure to VITO
- 09.30: Visit at the VITO labs & poster presentations

### **Site 2: Soil and groundwater remediation (+ facultative Environmental toxicology)**

- Natural attenuation:
  - microcosm studies for biodegradation;
  - reactive transport modeling;
  - compound specific isotope analyses for field studies of pollutant degradation;
  - Microbial analyses with polymerase chain reaction (Q-PCR).
- Enhanced natural attenuation:
  - laboratory batch tests and bioreactor tests for ex situ and in situ bioremediation of petroleum hydrocarbons and MTBE;
  - Field/pilot tests for bioventing and biosparging;
  - Bio-augmentation, eg for MTBE.
- Bioreactor for MTBE removal in P&T-systems.
- ISCO In-situ chemical oxidation feasibility studies:
  - Determining NOD;
  - Selection of suitable oxidants;
  - Degree of pollutant destruction and identification of adverse side effects.
- Soil washing tests on laboratory and pilot scale.
- Pilot tests for SVE and air sparging.

**Site 1: Water treatment and membrane technology (facultative biofuels)**

- Membrane bioreactors
- VITO Fouling Measuring method
- Membrane filtration
- Primary and secondary biofuels

12.00: Lunch at Clubhouse Hotel, VITO

13.00: Return to Antwerp

14.30: Visit to Antwerp City Hall

15.30: End

<b>Posters</b>
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1. CO<sub>2</sub> reduction and captation by Ben Laenen (VITO)
2. Experimental identification of CO<sub>2</sub>-water-rock interactions caused by sequestration of CO<sub>2</sub> t un Westphalian and Buntsandstein sandstones of the Campine basin by Ben Laenen (VITO)
3. Pathways to second generation biofuels by Ruben Guisson (VITO)
4. Soil remediation feasibility tests by Johan Gemoets (VITO)
5. Oil characterization, toxicology and biodegradation by Debin Mao (VITO)
6. Biotreatment of MTBE pollution by Leen Bastiaens (VITO)
7. VITO - Environmental Toxicology by Hilda Witters (VITO)
8. Education for sustainable water management & technology by Eric de Deckere (Antwerp University)
9. MODELKEY: modelling the impact of key pollutants on the aquatic environment by Eric de Deckere (Antwerp University)
10. Validating ecosystem goods and services by Eric de Deckere (Antwerp University)