Workshop co-organized by FP7 DEMEAU
hosted by VEOLIA and CAE-ENDETEC
on Jan 29th of 2015

Welcome and Introduction

Florence Poty- CAE ENDETEC
Armelle Hebert- VERI
Outlines

- Welcome by Florence POTY, hosting the WS by CAE-ENDETTEC
- FP7 DEMEAU presentation – objectives - partners
- Main informations of WS day planning
- Workshop / Course Evaluation
Acknowledgments

- Vincent DUVILLIERS and Florence POTY and Lova Tiana RAKOTONIRINA from CAE-ENDETEC
- Marie Pierre DENIEUL and Gaëlle MEHEUT, VERI project managers
- Charlotte ARNAL from VERI

For their support to organize and host this DEMEAU WS today
EFFECT-BASED MONITORING TECHNIQUES
« In-vitro Bioassays as innovative tools for water quality assessment »

29th January 2015
## Analysis services for environmental monitoring

<table>
<thead>
<tr>
<th>Category</th>
<th>Service Details</th>
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</table>
| WATERS           | - Water resources & drinking water analysis  
                  - Process water  
                  - Legionella detection                                                                                                                                 |
| WASTEWATER & SLUDGES | - Urban & industrial effluents analysis  
                              - Sludge and sediments analysis                                                                                                                                 |
| AIR & FLUE GASES | - Air emission control  
                              - Biogas characterization                                                                                                                      |
| WASTE            | - Incineration residues  
                              - Waste characterization and landfill acceptance analysis                                                                                     |
| BIOMASS          | - Analysis of calorific value (biomass, biofuels and solid recovered fuels)                                                                     |
## Innovative solutions to assist operators

<table>
<thead>
<tr>
<th>TECTA B16</th>
<th>WATCHFROG TESTS</th>
<th>OCTOPUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fast measurement of E.coli for monitoring the quality of bathing and drinking water</td>
<td>Assessment of the presence of endocrine disruptor in aqueous matrices and the efficiency of a WWTP</td>
<td>Identifying metal pollutant sources from wastewater system</td>
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DEMEAU WS event on “In vitro Bioassays as innovative tools for water quality assessment” January 29th 2015
We Wish you a GOOD WORKSHOP
DEMEAU

Demonstrating promising technologies to address emerging pollutants in water and waste water

http://demeau-fp7.eu  
@DEMEAUFP7  
in DEMEAU FP7 Project

Project Coordinator:  
KWR Watercycle Research Institute  
Theo.van.den.Hoven@kwrwater.nl

Dissemination Partner:  
Ecologic Institute  
mail@demeau-fp7.eu

Partners

Project structuration

WorkArea 4
Implementation of bioassays for water quality monitoring
Implementation of novel rapid and quantitative bioassays for water quality monitoring

focused on most water contaminants critical endocrine disruption pathways and on genotoxic or mutagenic effects

Objectives

- Selection and validation of bioassays for water quality assessment
  - Selection criteria
  - Selection of bioassays
  - Automation
  - Effect-based trigger values (for DW, water resources and WWTP effluents)

- Implementation of bioassays for water quality assessment
  - Promote regulatory acceptance
  - Develop guidelines for water professionals
  - Introduction at labs and water utilities
  - Demonstrate the screening bioassay panel
    - for testing the performance of novel water treatment processes
    - for water quality routing monitoring
Partners presentation

Demonstration of promising technologies to address emerging pollutants in water and waste water

Merijn Schriks, PhD and Kirsten Baken, PhD
European Registered Toxicologist at KWR Watercycle Research Institute.

Cornelia Kienle, PhD
Aquatic ecotoxicologist at the Swiss Centre for Applied Ecotoxicology (Ecotox Centre) Eawag-EPFL.

Eszter Simon, PhD and Harrie Besselink, PhD
Project manager at BDS on effect-based bioanalytical tools used in water quality monitoring. Focus on performance/development/validation of reporter assays (CALUX technology) Bioassay validation, epidemiology and water quality monitoring.

Armelle Hebert, PhD
Environmental health risk assessment expert by Veolia Recherche & Innovation (VERI).

Ron van der Oost, PhD
European Registered Toxicologist, Working at the Waternet Institute for the Urban Water Cycle.

Frederic Leusch, PhD
Associate Professor, School of Environment | Griffith University
Research Leader, Water Quality and Diagnostics | Smart Water Research Centre
Vice-President, Society of Environmental Toxicology and Chemistry (SETAC) Australasia
Main informations of WS day planning

**Morning**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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</table>
| 9:00-9:10 | Welcome and introduction  
Dr. Armelle Hebert, VERI, and Florence Poty, ENDETEC, France |
| 9:10-9:35 | What are bioassays and how do they work?  
Dr. C. Kienle, Ecotox Centre Eawag-EPFL |
| 9:35-10:00 | In vitro bioassays for human toxicological effect assessment  
Dr. A. Hebert, VERI, France |
| 10:00-10:25 | Application of in vitro bioassays for water quality monitoring  
Dr. H. Besselink, BDS, The Netherlands |
| 10:25-10:50 | Interpretation of bioassay results  
Dr. R. van der Oost, Waternet, The Netherlands | Dr. M. Schriks, KWR, The Netherlands |
| 10:50-11:20 | Coffee break |
| 11:20-12:20 | Case studies – Bioassays’ added value in water quality monitoring |

**Afternoon**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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</table>
| 13:30-14:30 | Group A: Sample workup prior to bioassays and data handling  
Group B: Bioassay type 1 (Microtox assay)  
Group C: Bioassay type 2 (CALUX assay as example of reporter gene assay) |
| 14:30-15:30 | Group A: Bioassay type 1 (Microtox assay)  
Group B: Bioassay type 2 (CALUX assay)  
Group C: Sample workup prior to bioassays and data handling |
| 15:30-16:00 | Coffee break |
| 16:00-17:00 | Group A: Bioassay type 2 (CALUX assay)  
Group B: Sample workup prior to bioassays and data handling  
Group C: Bioassay type 1 (Microtox assay) |
| 17:00-17:15 | Closure |

Meet point at Aquarene Entry at 13:15
Workshop / Course Evaluation

Demonstration of promising technologies to address emerging pollutants in water and waste water

Workshop / Course Evaluations

Course: Effect-based monitoring techniques
Course organizers: Anneleen Hebert, Charlotte Amel, Elodie Simon, Gemma Kiefer
Date: 29 January 2015

1. How did the workshop satisfy your expectations?
   - 5 Very good
   - 4 Good
   - 3 Adequate
   - 2 Satisfactory
   - 1 Poor

2. Which issues were missing?

3. What was the most important thing you learned in this workshop for your employment?

4. What would you change for a repetition of the workshop?

Scientific program

Morning only

Lab Demonstration

in 3 sessions

Afternoon

7. Questions on the presentations

<table>
<thead>
<tr>
<th>Topic</th>
<th>Feedback</th>
<th>Remarks</th>
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<tbody>
<tr>
<td>1. What are bioassays and how do they work?</td>
<td>Dr. C. van Beusekom</td>
<td>4 3 2 1</td>
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<tr>
<td>2. In vitro bioassays for human toxicity</td>
<td>Dr. A. Hebert</td>
<td>4 3 2 1</td>
</tr>
<tr>
<td>3. In vitro bioassays for risk assessment monitoring</td>
<td>Dr. M. Desimone</td>
<td>4 3 2 1</td>
</tr>
<tr>
<td>4. Interpretation of bioassay results</td>
<td>Dr. R. van der Oost</td>
<td>4 3 2 1</td>
</tr>
<tr>
<td>5a. Case studies: Do poultry compounds account for water pollution?</td>
<td>Dr. E. Simen</td>
<td>4 3 2 1</td>
</tr>
<tr>
<td>5b. Novel bioassays in water quality monitoring, detection and decontamination activities</td>
<td>Dr. M. Desimone</td>
<td>4 3 2 1</td>
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Specific questions with regard to the use of bioassays

8. How and when do you use the existing bioassay methods?
   - On a regular basis
   - In case of special events (which?)

9. Which bioassays do you use, total number/percent/batch?

10. Which are the limiting factors?

<table>
<thead>
<tr>
<th>Analytical Performance</th>
<th>Reactivity</th>
<th>Method not yet validated</th>
<th>Cost</th>
<th>Ease of use</th>
<th>Reliability of interpretation</th>
<th>Other</th>
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Comments:

11. Regarding detection systems, how important are the following attributes?