



# DOC2Cs: 2nd Workshop Progress Update

5 October 2017

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# Progress Update Agenda

- Overview of project
- New observers
- R&D updates
- Video knowledge clips
- Operator training programs
- Educational visits
- SME's and end-user involvement
- Future workshops



# Overview of DOC2Cs

- Awarded on the 9<sup>th</sup> November 2015 from INTERREG Two Seas Program
- Project value at over €4.1M
  - partially covered by in-kind contributions from the project partners
- Project ends on the 31<sup>st</sup> of December 2019



# DOC2C's Project Organization

*NW European representation through partners and observers*

- PWNT R&D – Lead Partner
- Partners
  - South West Water (utility)
  - Lille 1 University
  - Delft University of Technology
  - De Watergroep –(utility)
- 34 observers from various regions and all walks of water industry



# Work packages

- WP1 – Joint Research Programme
- WP2 – Development and Demonstration of Pilots and Validation of Several Innovative Technologies
- WP3 – Testing Facilities for Small & Medium Sized Entity (SMEs)
- WP4 – Project Management
- WP5 – Communication





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# www.doc2cs.com

# Observers

Portsmouth Water Ltd

Evides Waterbedrijf

Water-Link

United Utilities Water PLC

SMAEL – Syndicat Mixte d-Adduction  
des Eaux de la Lys

University of Gent – Dept. of  
Industrial Biological Sciences

KU Leuven – Technology Campus  
Ghent

South Devon University Technical  
College

UK Water Industry Research Ltd.

UK Drinking Water Inspectorate

IEC N.V.

Het Waterlaboratorium

Restoffenunie

Tecker Ltd.

Network of Potable Water  
Treatment and Supply

Anglian Water Services Ltd.



# Observers

Bristol Water plc

Wessex Water

Scottish Water

Stockholm Water AB

Norrvatten

Vatten & Miljö i Väst AB, VIVAB

Katholieke Universiteit Leuven –  
Dept. of Chemical Engineering

Wageningen UR

Cranfield University

Water agency Artois Picardie

Flanders Water Technology Network

Veolia Water

Sembcorp Bournemouth Water

Eaux du Nord

Province of North Holland

University of Ghent, Dept. of  
Applied Analytical and Physical  
Chemistry

# Observers

Agoria – Federation for the technology industry

Aqua Metrology Systems Limited

**B.4 Observer partners 2**

Partner role in the project	Observer Partner
Name of organisation in original language	Evides Waterbedrijf
Name of organisation in English	Evides Waterbedrijf
Address	
Street	P.O. Box 4472
Postcode	3006 AL
Town	Rotterdam
Country	NEDERLAND
Forename	J.Q.J.C.
Surname	Verberk
Forename	J.Q.J.C.
Surname	Verberk
Email	j.verberk@evides.nl
Phone number	31 622 741 399

Partner's role in the project

We are a water utility situated in the 2 Seas area. Therefore the increase in contamination of drinking water sources with DOC, as a result of climate change and intensive economic activities, is a topic of great concern

# Observers



Agoria – Federation for the  
technology industry

Aqua Metrology Systems Limited

Welsh Water

Yorkshire Water

Sydvatten

Arcadis

S:SCAN

Severn Trent

Sourceo

Norconsult

Panton McLeod

Imperial College London

Parker Hannifin Manufacturing Ltd

Malvern Instruments

# R&D updates

- Pilot study by PWNT



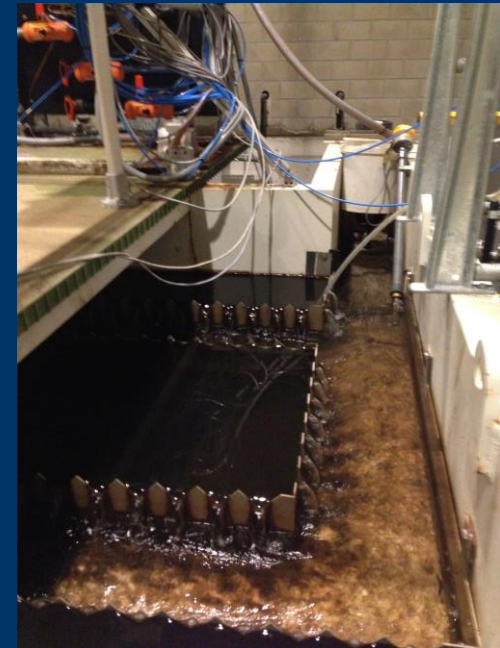
# R&D updates

- Pilot study by SWW



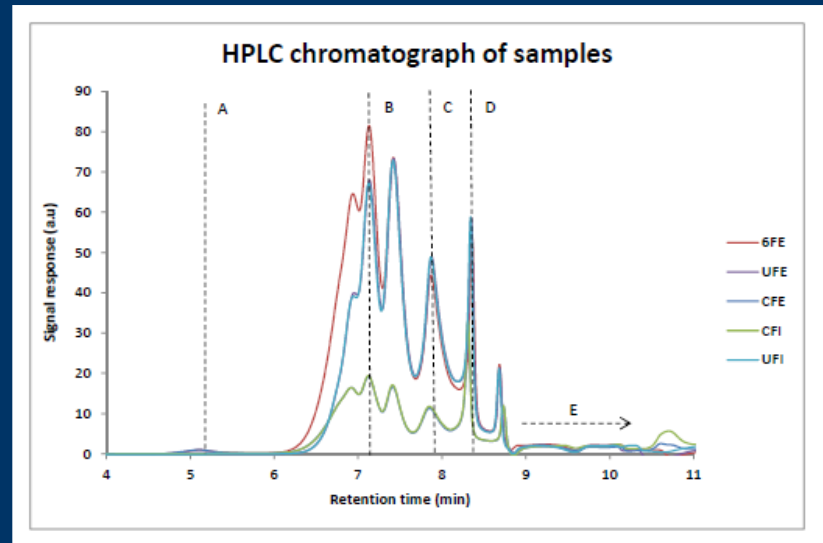
# R&D updates

- Pilot study by de Watergroep



# R&D updates

- Analytical NOM characterization and DBP study by Lille 1 University



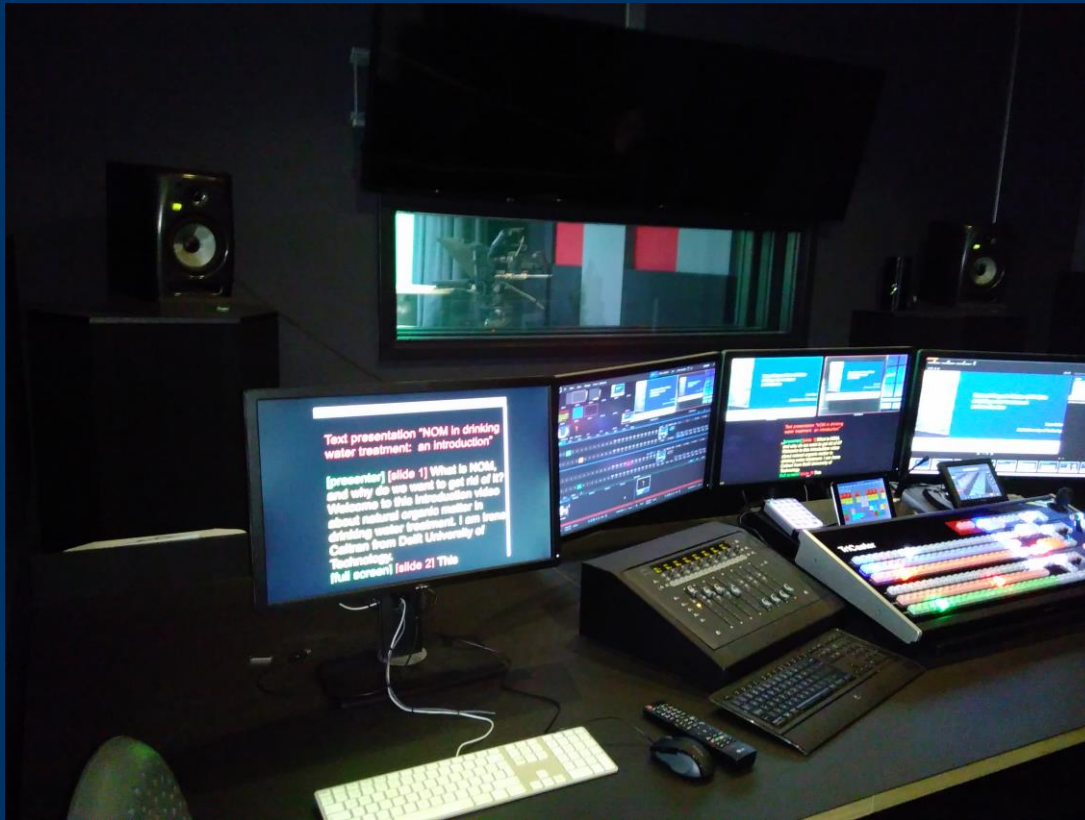
# R&D updates

- literature reviews, knowledge video clips, ceramic NF research by TU Delft





# Knowledge Video Clips



# Knowledge Video Clips



# Knowledge Video Clips



# Operator training programs

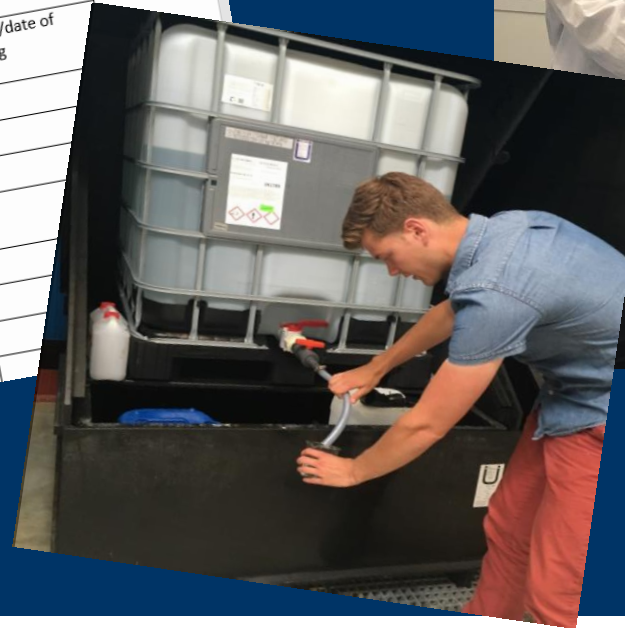
Interreg   
 2 Seas Mers Zeeën  
 DOC2C's  
 European Regional Development Fund



## Operator Training Checklist

See below a checklist for all tasks that should have been covered during training. Please make sure all of these tasks have been covered and understood before signing.

Check if Complete	Training Task	Trainer/date of training
	Review Operator Training Document	
	Process Introduction	
	P&ID Review	
	Emergency site information (fire meeting point), awareness of alarm locations and fire extinguisher location	
	Emergency stop for pilot plant power and water	
	Review of Experimental Test Plan	
	Review of Sampling Plan and sampling procedures	
	Review of HMI screens for all pilots	

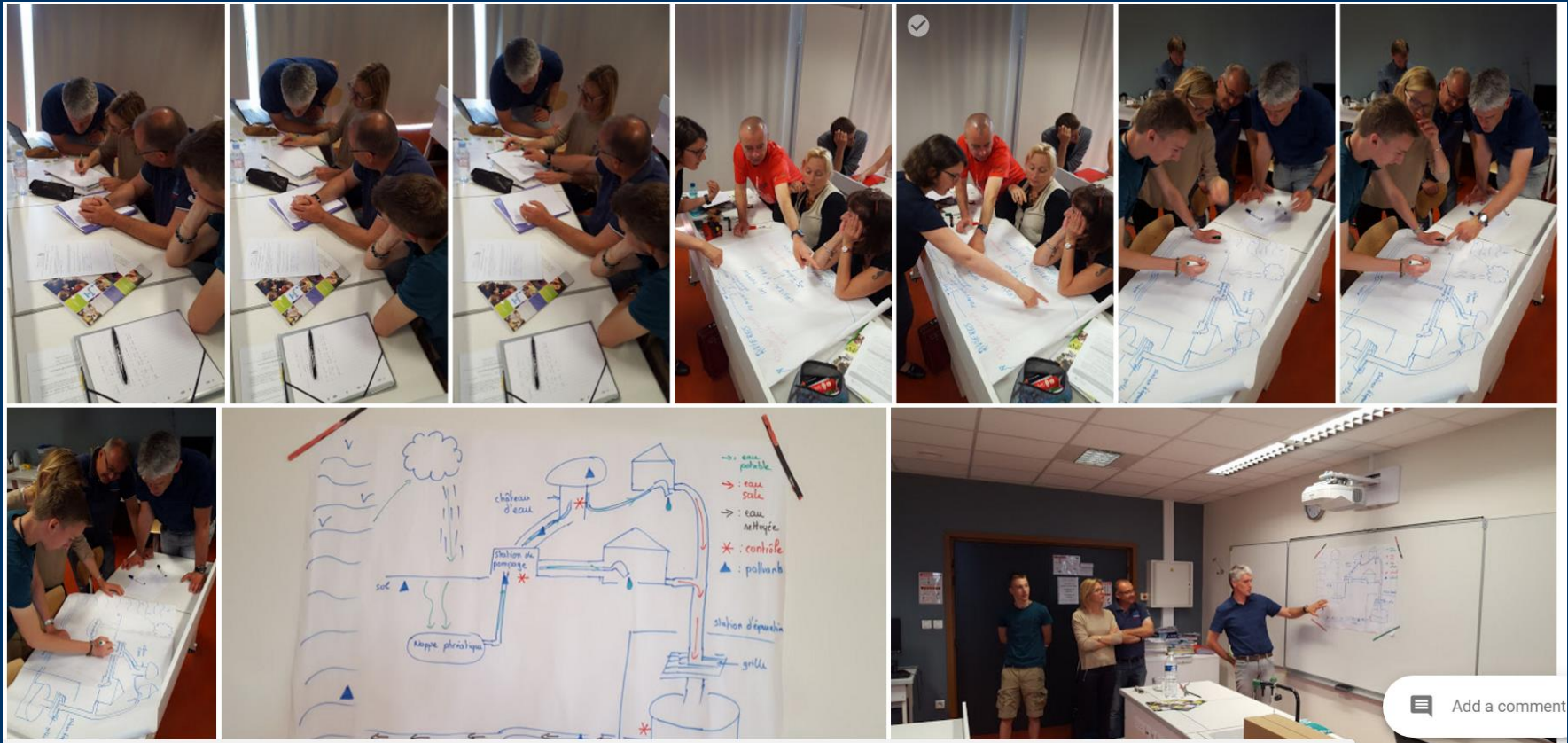


# Educational activities

School visits to treatment facilities



# Educating the educators (Lille U)



Add a comment

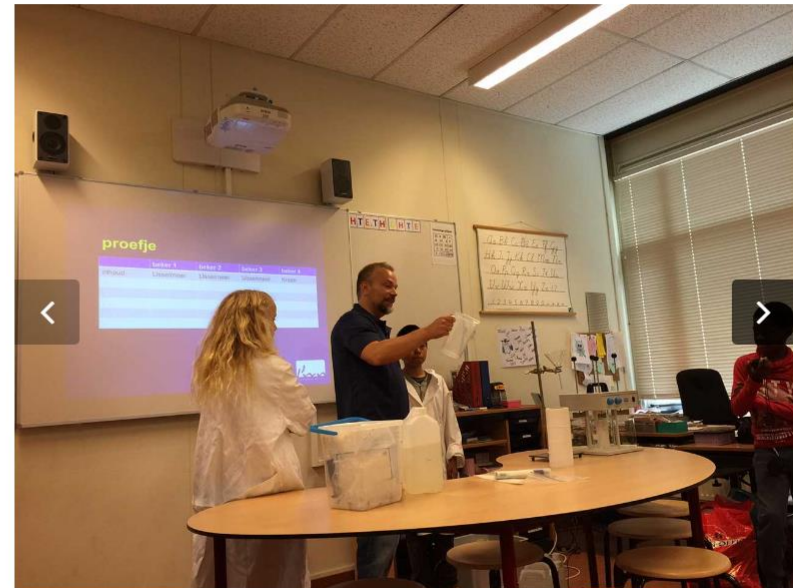
# Primary school visits

## Gilbert Galjaard teaches water treatment science for kids

Recently CTO/Director R&D Gilbert Galjaard was invited as guest teacher at the primary school of his son, to give a water treatment workshop for kids. Gilbert told the children everything about the water treatment process and the removal of DOC (Dissolved Organic Carbon).

Gilbert's pupils were fully interested in this story and the process. After the presentation, the children could experiment with some tests, under supervision of Gilbert. That was really an exciting moment.

Also Gilbert was very enthusiastic of the scientific results the pupils delivered. Some of them may choose the profession of water scientist in the future. The school and its pupils were very impressed and requested Gilbert to give another workshop at school in the nearest future.



# Primary school visits





# SME involvement

- Invitation to test innovative DOC-related technologies
- End-user participation



# Future Workshops



**2018 – South West Water - Plymouth, United Kingdom**

**2019 – Lille 1 University - Lille, France**

# Today's workshop

- Parallel morning and afternoon sessions
  - DOC removal and NOM characterization
  - DOC removal and brine treatment and reuse of brine
- Presentation by de Watergroep before lunch
- Tour of facility after lunch
- Outcomes discussion and knowledge video clips
- End-users meeting
- Drinks-snacks-discussion