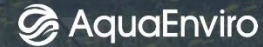


# EUROPEAN BIOSOLIDS & ORGANIC RESOURCES CONFERENCE & EXHIBITION

19<sup>th</sup> - 20<sup>th</sup> November 2019

Emirates Old Trafford, Manchester, UK



Conference sponsored by: **BUCHER**  
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## DAY 1 – TUESDAY 19<sup>TH</sup> NOVEMBER

08.45 – 09.30 Registration

### ROOM 1

#### **PLENARY KEYNOTE**

*Chair – Steve Bungay, Owner & Director, Helix Environmental Consultancy Ltd*

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**09.30 – 10.10 The future of bioresource management in the UK**  
Alexander Maddan, CEO, Agrivert Ltd

#### **ADVANCES IN ANAEROBIC DIGESTION**

*Chair – Sam Hughes, Technical Director and Head of Bioresources, Jacobs*

Session sponsored by: **JACOBS**

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**10.15 – 10.40 Full scale validation of a model to predict anaerobic digester performance**  
Oxtoby, S.<sup>1,2</sup>, Winter, P.<sup>1</sup>, Smith, S.R.<sup>2</sup>, <sup>1</sup>Thames Water, UK, <sup>2</sup>Imperial College London, UK

**10.40 – 11.05 Genomics orchestration surpasses biochemical limitations for a new renaissance in anaerobic digestion**  
Lee, P-H., Imperial College London, UK

**11.05 – 11.35 Morning break & exhibition**

**11.35 – 12.00 How to Transition from conventional MAD to THP digestion; experiences from Basingstoke**  
Merry, J.<sup>1</sup> and Fountain, P.<sup>2</sup>, <sup>1</sup>Stantec, UK, <sup>2</sup>Thames Water, UK

**12.00 – 12.25 The effects of thermal hydrolysis and ammonia concentration on digestion rates at Basingstoke STW. Searching for the sweet spot**  
Panter, K.<sup>1</sup>, Fountain, P.<sup>2</sup>, Shana, A.<sup>2</sup>, <sup>1</sup>Cambi, UK, <sup>2</sup>Thames Water, UK

**12.25 – 12.50 Operating a three-staged thermophilic anaerobic digestion facility**  
Parry, D.<sup>1</sup>, Sela, Y.<sup>2</sup>, Rabinowitz, B.<sup>1</sup>, Clark, C.<sup>1</sup>, <sup>1</sup>Jacobs, USA <sup>2</sup>Mey Ezor Dan, Israel

**12.50 – 13.15 Unravelling the Ephyra sludge digestion technology**  
Koorneef, E., Visser, A., Hendriks, A., Royal HaskoningDHV, The Netherlands

**13.15 – 14.15 Networking lunch**

*Afternoon chair – Rowland Minall, General Manager, Aqua Enviro*

**14.15 – 14.40 Enhanced biogas production in mesophilic sludge digesters**  
Baloch, I.<sup>1</sup>, Liang, S.<sup>2</sup>, Bagnall, T.<sup>1</sup>, Clark, P.<sup>1</sup>, Bungay, S.<sup>3</sup>, <sup>1</sup>Southern Water, UK, <sup>2</sup>Stantec, UK,  
<sup>3</sup>Helix Environmental Consultancy Ltd, UK

**14.40 – 15.05 The role of ammonia stripping in the enhancement of anaerobic digestion**  
Eden, R.<sup>1</sup>, Moulden, M.<sup>1</sup>, Richardson, K.<sup>1</sup>, Thomas, T.<sup>2</sup>, <sup>1</sup>Organics Ltd, UK <sup>2</sup>University of Warwick, UK

**15.05 – 15.30 Process intensifying the circular biosolids economy via hydrodynamic cavitation. Increasing biogas and biomethane yields of secondary sewage sludge AD plants**  
Greenwood, E.<sup>1</sup> and Ageridis, N.<sup>2</sup>, <sup>1</sup>CaviMax Ltd, UK, <sup>2</sup>Projective Ltd

**15.30 – 16.00 Afternoon break & exhibition**

## **AMMONIA MANAGEMENT**

*Chair – Céline Vaneekhaute, Assistant Professor at Université Laval*

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**16.00 – 16.25 Operational experience with treatment of THP-MAD sidestream liquors with the ANAMMOX<sup>®</sup>-process**  
Driessen, W.<sup>1</sup>, Veldhoven, J.T.A.<sup>2</sup>, Janssen, M.<sup>2</sup>, Hobbs, E.<sup>3</sup>, Went, C.<sup>3</sup>, <sup>1</sup>Paques bv, The Netherlands, <sup>2</sup>Waterschap De Dommel, The Netherlands, <sup>3</sup>Severn Trent Water, UK

**16.25 – 16.50 Successful commissioning of Basingstoke STW DEMON<sup>®</sup> liquor treatment plant**  
Inkpin, L.<sup>1</sup>, Madden, G.<sup>2</sup>, Merry, J.<sup>3</sup>, Fountain, P.<sup>4</sup>, <sup>1</sup>Contractor, <sup>2</sup>Costain, UK, <sup>3</sup>MWH Global, UK, <sup>4</sup>Thames Water, UK

**16.50 – 17.15 Ammonia removal with different deammonification technologies from thermal hydrolysis anaerobic digestion dewatering liquors**  
Ochs, P.<sup>1,2</sup>, Martin, B.<sup>2</sup>, Germain-Cripps, E.<sup>2</sup>, van Loosdrecht, M.<sup>3</sup>, Stephenson, T.<sup>1</sup>, Soares, A.<sup>1</sup>,  
<sup>1</sup>Cranfield University, UK, <sup>2</sup>Thames Water, UK, <sup>3</sup>Delft University of Technology, The Netherlands

## **ROOM 2**

### **LANDBANK SECURITY**

*Chair – Alec Llewellyn, Bioresources Manager, Northumbrian Water Ltd*

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**10.15 – 10.40 Landbank security issues in the United States**  
Pepper, I., Water & Energy Sustainable Technology (WEST) Center, The University of Arizona, USA

**10.40 – 11.05 Overview of biosolids legislation, production and management in developed and developing countries worldwide**

Salazar-Espitia, J.D.<sup>1</sup>, González, A.F.R.<sup>1</sup>, Vasco, J.M.N.<sup>2</sup>, <sup>1</sup>National University of Colombia, <sup>2</sup>Catholic University of Manizales, Columbia

**11.05 – 11.35 Morning break & exhibition**

**11.35 – 12.00 Recontamination of dewatered biosolids by *E. coli***

Svennevik, O.K.<sup>1,2</sup>, Jonassen, K.R.<sup>1</sup>, Svensson, K.<sup>2</sup>, Dadgar, F.<sup>2</sup>, Hagen, L.H.<sup>1</sup>, Westereng, B.<sup>1</sup>, Solheim, O.E.<sup>2</sup>, Nilsen, P.<sup>2</sup>, Horn, S.<sup>1</sup>, Bakken, L.<sup>1</sup>, <sup>1</sup>Norwegian University of Life Sciences, Norway, <sup>2</sup>Cambi Group AS, Norway

**12.00 – 12.25 The Biosolids Assurance Scheme: new clothes for the Emperor?**

Tompkins, D., Aqua Enviro, UK

**12.25 – 12.50 Towards Quality by Design to improve the quality and marketing potential of recovered end-products**

Vaneekhaute, C., Université Laval, Canada

**12.50 – 13.15 Phosphate Acceptance Map: A new research tool for determining land suitability for application of biosolids**

Wadsworth, R., Hallett, S., Sakrabani, R., Cranfield University, UK

**13.15 – 14.15 Networking lunch**

**14.15 – 14.40 Biosolids management in Scotland – a regulator's perspective**

Aitken, M., SEPA

**14.40 – 15.30 Panel discussion – Sludge 2020: Is the market ready?**

- Alexander Maddan, Chief Executive, Agrivert Ltd
- Richard Brindle, Head of Bioresources Strategy, United Utilities
- Dr David Tompkins, Head of Knowledge, Exchange & Innovation, Aqua Enviro

**15.30 – 16.00 Afternoon break & exhibition**

**PRE-TREATMENT**

*Chair - Dave Holthöfer, Head of Bio-resources Business, Dwr Cymru Welsh Water*

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**16.00 – 16.25 Techno-economic analysis of anaerobic digestion pre-treatment technologies for a UK site**

Smith, R.W., and Rus, E., Jacobs, UK

**16.25 – 16.50 Exelys, a simple & continuous TH technology, initial feedbacks from two installations start-up**

Bigot, B.<sup>1</sup>, MacBeath, S.<sup>1</sup>, Nielsen, E.<sup>2</sup>, <sup>1</sup>Veolia Water & Technologies UK, <sup>2</sup>Veolia Water & Technologies, Biosolids Techno BU, Denmark

**16.50 – 17.15 Prediction of viscosity based on sludge type and characteristics and its significance for thermal hydrolysis economy**

Svensson, K. and Dadgar, F., Cambi Group AS, Norway

## ROOM 3

### CONVERTING GENETIC INFORMATION INTO ACTION – PROGRESS AND PROBLEMS

*Chair – Angela Bywater, Environmental Biotechnology Network (EBNet), University of Southampton*

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- 10.15 – 10.40 Can we predict microbial responses in anaerobic digestion?**  
Chong, J., University of York, UK
- 10.40 – 11.05 Metabolic modelling meets anaerobic digestion**  
Rossa, C.A., University of Surrey, UK
- 11.05 – 11.35 Morning break & exhibition**
- 11.35 – 12.00 The genomic diversity of UK industrial anaerobic digesters resolved from metagenomes**  
Quince, C., University of Warwick, UK
- 12.00 – 12.25 Manipulation of community evolution and ecology as a tool to improve performance**  
Sierocinski, P., Environment and Sustainability Institute, University of Exeter, UK
- 12.25 – 12.50 Organic loading rate: A promising microbial management tool in anaerobic digestion**  
Villa, R., De Montfort University, UK
- 12.50 – 13.15 The importance and potential for optimising the biology within AD systems – an industry view**  
Taylor, T., Yorkshire Water
- 13.15 – 14.15 Networking lunch**

### MAKING BIOGAS PAY (MORE) – MARKETS FOR BIOMETHANE AND CO<sub>2</sub>

*Chair – Kiara Zennaro, Head of Biogas, Renewable Energy Association*

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- 14.15 – 14.40 Biogas Policy – Past, Present and Future**  
Hopwood, L., NNFCC, UK
- 14.40 – 15.05 Full-scale digester micro-aeration studies to improve biogas quality**  
Kraakman, B.<sup>1,2</sup>, Diaz, I.<sup>2</sup>, Muñoz, R.<sup>2</sup>, <sup>1</sup>Jacobs, UK, <sup>2</sup>Institute of Sustainable Processes, University of Valladolid, Spain
- 15.05 – 15.30 Gastop, optimization of the design of anaerobic digestion with reduced safety area and improved quality of the biogas produced**  
Simonsen, N.<sup>1</sup>, Bigot, B.<sup>2</sup>, Kjaer, R.<sup>1</sup>, <sup>1</sup>Krüger A/S, Denmark, <sup>2</sup>Veolia Water Solutions & Technologies, UK
- 15.30 – 16.00 Afternoon break & exhibition**
- 16.00 – 16.25 Energy production from biogas: responding to current and future opportunities**  
Horne, P.<sup>1</sup>, Richards, S.<sup>2</sup>, Pogson, J.<sup>2</sup>, Pennick, A.<sup>1</sup>, <sup>1</sup>United Utilities, UK, <sup>2</sup>Jacobs/United Utilities, UK

- 16.25 – 16.50 Making biomethane pay – CO2 capture and the potential to be carbon negative**  
Scott-Kerr, J., Future Biogas, UK
- 16.50 – 17.15 Biomethane and CO2 market development and whole value chain - a UK and European Perspective**  
Hurren, D., Air Liquide advanced Business & Technology UK
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## **DAY 2 – WEDNESDAY 20<sup>TH</sup> NOVEMBER**

**08.30 – 09.00 Registration**

### **ROOM 1**

#### **PLENARY KEYNOTE**

*Chair – Dr David Tompkins, Head of Knowledge, Exchange & Innovation, Aqua Enviro*

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**09.00 – 09.30 Nutrient recycling in Germany: current and future approaches**  
Christian Kabbe, Managing Director, EasyMining Germany

#### **PROCESS MODELLING AND CONTROL**

*Chair – Wesley Wong, Technical Manager, GENeco*

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**09.35 – 10.00 The 2030 net zero carbon challenge**  
Brindle, R., United Utilities

**10.00 – 10.25 Automation, control and optimisation of the sludge line at WwTP Utrecht with Aquasuite Mine**  
Heijkoop, D., Post, B., Koorneef, E., Royal HaskoningDHV, The Netherlands

**10.25 – 10.50 Utilizing integrated software, proven algorithms and decades of chemical applications experience to continuously automate and optimize an already advanced municipal dewatering operation in Denmark**  
Jonker, E., Kemira Chemicals Germany GmbH

**10.50 – 11.20 Morning break & exhibition**

#### **THICKENING AND DEWATERING**

*Chair - Richard Lancaster, Technical Director Biosolids, Atkins*

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**11.20 – 11.45 Why dewaterability of sewage sludge occurs upstream – a model to quantify the effects**  
Kopp, J., Kläranlagen Beratung Kopp, Germany

**11.45 – 12.10 Vivianite & struvite: growing challenges for bioresources & wastewater operations**  
Smyth, M., Aqua Enviro, UK

- 12.10 – 12.35** **Techno-economic analysis of post THP+AD dewatering options for a UK site**  
Rus, E., Jacobs, UK
- 12.35 – 13.30** **Networking lunch**
- 13.30 – 13.55** **Predicting dewatered cake solids after conventional AD, Pre-AD THP and Post-AD THP**  
Svennevik, O.K.<sup>1,2</sup>, Beck, G.<sup>3,4</sup>, Rus, E.<sup>5</sup>, Westereng, B.<sup>1</sup>, Higgins, M.<sup>6</sup>, Solheim, O.E.<sup>2</sup>, Nilsen, P.<sup>1,2</sup>, Horn, S.J.<sup>1</sup>, Svensson, K.<sup>2</sup>, Dadgar, F.<sup>2</sup>, <sup>1</sup>Norwegian University of Life Sciences, Norway, <sup>2</sup>Cambi Group AS, Norway, <sup>3</sup>Norwegian University of Life Sciences, Norway, <sup>4</sup>NIBIO, Norwegian Institute of Bioeconomy Research, Norway, <sup>5</sup>Thames Water, UK, <sup>6</sup>Bucknell University, Lewisburg, USA
- 13.55 – 14.20** **The practical implementation of reducing sludge dewatering whole life costs**  
Sims, J.<sup>1</sup> and Parker, D.<sup>2</sup>, <sup>1</sup>Huber Technology, UK, <sup>2</sup>Kier Services, UK
- 14.20 – 14.45** **Biocage™ sludge thickening - operational experience from two water companies**  
Thomas, P., Crouch, J., Field, A., Afeco, UK
- 14.50 – 14.55** **Student & early career professionals' poster award presentation** (sponsored by) 
- 14.55 – 15.15** **Afternoon break & exhibition**
- 15.15 – 15.40** **Demonstration of a continuous TORWASH® pilot plant for dewatering of sewage sludge**  
Nanou, P., Pels, J.R., Sebastiani, F., van der Meijden, C.M., Kuipers, H., Driessen, W., Vogelaar, J., TNO, The Netherlands
- 15.40 – 16.05** **A look in the rear-view mirror after more than 10 years of Bucher presses operation on biosolids dewatering**  
Mischler, J-F., Bucher Unipektin, Switzerland
- 16.10 – 16.20** **Conference close**  
Dr David Tompkins, Head of Knowledge, Exchange & Innovation, Aqua Enviro

## **ROOM 2**

### **2020 AND BEYOND**

**Chair - Dr Lindsey Gove, Biosolids Scientist, Anglian Water Services Ltd**

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- 09.35 – 10.00** **UK AD through the crystal ball. AD and the Climate Action Imperative**  
Scheven, D., AcrEnergy
- 10.00 – 10.25** **Maximising efficiency when you are not starting from scratch...**  
Cherry, L., Severn Trent Water, UK
- 10.25 – 10.50** **Lithium tracer testing across 12 sludge treatment centres to inform United Utilities' resilience strategy for AMP7**  
Herron, D.<sup>1</sup> and Croft, J.<sup>2</sup>, <sup>1</sup>Aqua Enviro, UK, <sup>2</sup>United Utilities, UK
- 10.50 – 11.20** **Morning break & exhibition**

**11.20 – 11.45 Preparing for the future – NI Water’s sludge strategy**  
Auty, D.<sup>1</sup> and McArthur, J.<sup>2</sup>, <sup>1</sup>PROJEN Ltd, UK, <sup>2</sup>Northern Ireland Water

## **RESOURCE RECOVERY / NEW PRODUCT DEVELOPMENT**

*Chair - Chris Thornton, European Sustainable Phosphorus Platform (ESPP)*

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- 11.45 – 12.10 Design of fired-clay brick prototype from biosolids generated in an Andean municipal WWTP in Colombia**  
Salazar-Espitia, J.D.<sup>1</sup>, Ossa-Galvis, G.A.<sup>1</sup>, González, F.A.C.<sup>1</sup>, Orjuela, A.M.Z.<sup>1</sup>, Rios, A.N.<sup>1</sup>, Benites, D.G.<sup>1</sup>, Vasco, J.M.N.<sup>2</sup>, Yopez, O.D.C.<sup>1</sup>, Rubio, O.A.P.<sup>1</sup>, Salazar, M.T.J.<sup>3</sup>, Cardona, J.A.<sup>3</sup>, Baena, J.E.<sup>4</sup>, Arango, L.A.<sup>4</sup>, Buitrago, M.<sup>4</sup>, Montoya, A.L.<sup>5</sup>, Izaza, I.C.C.<sup>5</sup>, <sup>1</sup>National Learning Service of Colombia, <sup>2</sup>Catholic University of Manizales, Columbia, <sup>3</sup>Caldas University, <sup>4</sup>Tejares Terracota of Colombia S.A., <sup>5</sup>Aguas de Manizales S.A. E.S.P.
- 12.10 – 12.35 ABC economy – a three phase approach to valorising food production waste**  
Kleemann, R. and Murphy, F., University College Dublin, Ireland
- 12.35 – 13.30 Networking lunch**
- 13.30 – 13.55 Compact phosphorus precipitation and capture technology with operational and ecological benefits for wastewater treatment plants with anaerobic digestions**  
Dittmann, M., O’Brien, L., Knörle, U., Eliquo Water Group
- 13.55 – 14.20 Biosolids and biogenic fertilisers: developing a circular economy**  
Whipps, A.<sup>1</sup> and Hammond, A.<sup>2</sup>, <sup>1</sup>Pell Frischmann, UK, <sup>2</sup>CCm Technologies Ltd, UK
- 14.20 – 14.45 Futurethinking the sludge value chain**  
Lake, A., Iwaki, M., Hughes, S., Jacobs, UK
- 14.50 – 14.55 Student & early career professionals’ poster award presentation (ROOM 1)**
- 14.55 – 15.15 Afternoon break & exhibition**
- 15.15 – 15.40 Rigenera sewage sludge innovative treatment for the production of organic biosolids**  
Cavallino, R.M. and Campi, F., Rigenera S.r.l., Italy
- 15.40 – 16.05 Can we feed the world with resource-recovered sewage sludge?**  
Heitmann, M.<sup>1</sup>, Fowler, G.<sup>1</sup>, Perrault, A.<sup>2</sup>, <sup>1</sup>Imperial College London, UK, <sup>2</sup>Thames Water Utilities Ltd, UK
- 16.10 – 16.20 Conference Close (ROOM 1)**

## POSTERS

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### **Disrupting dewatering... dredging and subsequent microplastic removal**

Pring, W., KCP Ltd, UK

### **Phosphorus in agricultural soils: the role of biofertilisers and their derivatives**

Tompkins, D., Aqua Enviro, UK

### **Anaerobic digestion of solid residue from lignocellulose catalysis**

Hurst, G., Peeters, M., Tedesco, S., Manchester Metropolitan University, UK

### **Identifying rate limiting enzyme steps**

Robson, J., University of York

### **Exploring the possibility of using hemoglobin as bioflocculant in dewatering of biosludge**

Ghazisaidi, H.<sup>1</sup>, Garcia, R.<sup>2</sup>, Tran, H.<sup>1</sup>, Mayer, T.<sup>1</sup>, Nieman, C.<sup>2</sup>, D. Allen, G.<sup>1</sup>, <sup>1</sup>University of Toronto, Canada, <sup>2</sup>Agricultural Research Service (ARS), US Department of Agriculture

### **BONCAT-RACS: a technique to visualize and sort active microbes in anaerobic digestion system**

Amekan, Y., University of York

### **Simultaneous Biogas Enhancement and Reduction of Landfill Leachate Toxicity Supported by Carbon Dioxide Microbubble in an Anaerobic Co-digestion of Food Waste-Landfill Leachate**

Nugroho, W.A., Desai, P., Zimmerman, W.B., University of Sheffield, UK

**Student and Young Professionals' Poster Award – sponsored by:**



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### *Supporting Organisations*

