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**ATKINS**

# EUROPEAN WASTEWATER MANAGEMENT CONFERENCE & EXHIBITION

4 - 5 July 2023 | The Point at Emirates Old Trafford, Manchester | Online

Event Sponsors



## DRAFT PROGRAMME

Tuesday 4<sup>th</sup> July

### CONFERENCE OPENING & KEYNOTE PLENARY

**This changes everything: the coming climate reckoning**

Rupert Read, Associate Professor of Philosophy, University of East Anglia, UK

#### NET ZERO & PROCESS EMISSIONS

#### NUTRIENT REMOVAL & RECOVERY

#### COMPLIANCE & PROCESS OPTIMISATION

**Innovation in net zero carbon wastewater treatment and management**

Piekarniak, L., Isle Utilities, UK

**Update on nutrient recovery policies in Europe**

Thornton, C. ESSP, France

**WwTW design for low flows – A climate change requirement**

Pearce, P., Farmiloe Fisher Environment Ltd, UK

**HUBER looks at solutions for reducing carbon in wastewater treatment**

Foster, D., HUBER Technology, UK

**Phosphorus recycling from wastewater - The funding measure RePhoR (Regional Phosphorus Recycling) of the German Federal Ministry of Education and Research (BMBF)**

Schüller, S., Pinnekamp, J., Bastian, D. and Ooms, K., Research Institute for Water Management and Climate Future, RWTH Aachen University (FiW e.V.), Germany

**Wentworth STW WINEP BOD Scheme - Extensive investigation leading to a smart solution with cost and environmental benefits**

Genetello, E., Stantec, UK

NET ZERO & PROCESS EMISSIONS	NUTRIENT REMOVAL & RECOVERY	COMPLIANCE & PROCESS OPTIMISATION
<p><b>Driving progress towards net zero carbon: The Trial Reservoir</b> Burgess, J. and Clark, P., Isle Group Ltd, UK</p>	<p><b>The novel NaturP™ technology from Veolia for enhanced biological phosphorus removal (EBPR) in SBR MBBR</b> Langdon, M.<sup>1</sup>, Nussbaum, B.<sup>2</sup> and Skionieczny, T.<sup>2</sup>, <sup>1</sup>Veolia Water Technology, UK, <sup>2</sup>Veolia Anox Kaldnes, Sweden</p>	<p><b>Modular automation of ASP systems within existing PLC's for improved energy efficiency and wastewater treatment</b> Hallett, O., Air Technology Ltd, UK</p>
<p><b>Novel cold-anaerobic wastewater treatment of crude sewage- underpinning truly the wastewater treatment plants of the future</b> Holohan, C.<sup>1</sup>, Hughes, D.<sup>1</sup>, Beegan, C.<sup>1</sup>, O'Flaherty, V.<sup>2</sup>, Whitcombe, J.<sup>3</sup> and Williams, J.<sup>3</sup>, <sup>1</sup>NVP Energy, Ireland, <sup>2</sup>University of Galway, Ireland, <sup>3</sup>Dŵr Cymru Welsh Water, UK</p>	<p><b>Providing practicable and environment-friendly solutions for P-Removal at rural WwTW</b> Cowan, H., Jones, S and Wisdom, P., Power &amp; Water, UK</p>	<p><b>Upgrading Belfast WwTW</b> Sunner, N.<sup>1</sup>, Black, A.<sup>2</sup>, Robinson, D.<sup>3</sup> and Speers, D.<sup>4</sup>, <sup>1</sup>Stantec, UK, <sup>2</sup>Northern Ireland Water, UK, <sup>3</sup>MWH Treatment, UK, <sup>4</sup>McAdams, UK</p>
<p><b>The NEXT-GENeration of wastewater treatment; the first demonstration of mainstream anaerobic membrane bioreactor treatment in northern Europe: delivery, performance and behaviour insights</b> Palmer, M.<sup>1</sup>, Pitt, S.<sup>1</sup>, Smith, R.M.<sup>1</sup>, Vale, P.<sup>1</sup>, Paissoni, E.<sup>2</sup> and Soares, A.<sup>2</sup>, <sup>1</sup>Severn Trent Water, UK, <sup>2</sup>Cranfield University, UK</p>	<p><b>Using CoMag in a Storm Water Application as part of a new 'State of the Art' wastewater treatment plant at Fredrikstad</b> Radford, S.<sup>1</sup> and Wessman, F.<sup>2</sup>, <sup>1</sup>Evoqua Water Technologies, UK, <sup>2</sup>Enwa, Norway</p>	<p><b>Coupling MABR and continuous flow sludge densification to "super-intensify" existing activated sludge plants</b> Guglielmi, G.<sup>1</sup>, Coutts, D.<sup>2</sup>, Astrand, N.<sup>2</sup>, Donnaz, S.<sup>2</sup> and Peeters, J.<sup>2</sup>, <sup>1</sup>Veolia Water Technologies &amp; Solutions, Italy, <sup>2</sup>Veolia Water Technologies &amp; Solutions, Canada</p>
<p><b>Ready to fly: innovative quantification of process emissions</b> Jones, N.<sup>1</sup>, Bragg, R.<sup>1</sup>, Lederman, L.<sup>2</sup>, Knusden, B.<sup>2</sup> Clarke, R.<sup>3</sup> and Lake, A.<sup>3</sup>, <sup>1</sup>United Utilities, UK, <sup>2</sup>Explicit, Denmark, <sup>3</sup>Jacobs, UK</p>	<p><b>Upscaling filtration to meet industry needs for AMP7 and beyond</b> Biddle, J., Bluewater Bio, UK</p>	<p><b>Application of air mixing to improve ferric dosing efficiency, meet new p consents and reduce operational costs</b> Herron, D., Aqua Operations Ltd, UK</p>
<p><b>Mitigating the uncertainty in Net Zero investment decisions</b> Giacalone, S.<sup>1</sup> and Inman, D.<sup>2</sup>, BMA, UK, Anglian Water, UK</p>	<p><b>MICROPOLLUTANTS &amp; EMERGING CONTAMINANTS</b></p>	<p><b>Challenging the need for new tertiary treatment for AMP7 phosphorus permit</b> Sandalls, C.<sup>1</sup>, Cameron, C.<sup>2</sup>, Martin, A.<sup>1</sup> and Baloch, I.<sup>1</sup>, <sup>1</sup>Southern Water, UK, <sup>2</sup>University of Portsmouth, UK</p>
	<p><b>Chemical Investigations Programme (CIP) responding to emerging regulatory controls into trace contaminants</b> Brammer, J., Atkins, UK</p>	

NET ZERO & PROCESS EMISSIONS	MICROPOLLUTANTS & EMERGING CONTAMINANTS	COMPLIANCE & PROCESS OPTIMISATION
<p><b>Assessment and analysis of Nitrous Oxide and Methane Emissions from Veas WWTP for the purpose of mitigating direct Greenhouse Gas Emissions</b> Holstead, R., Veas, Norway</p>	<p><b>The eXeno™ and eXenoO3TM technology range for sustainable biological removal of pharmaceuticals and micropollutants in tertiary biofilm MBBR based technology</b> Langdon, M.<sup>1</sup>, Nussbaum, B.<sup>2</sup> and Skionieczny, T.<sup>2</sup>, <sup>1</sup>Veolia Water Technology, UK, <sup>2</sup>Veolia Anox Kaldnes, Sweden</p>	<p><b>An insight on achieving low phosphorus and low iron on a trickling filter works</b> Pinheiro, M. and Lee, G., Southern Water, UK</p>
<p><b>Estimating the carbon footprint of wastewater treatment</b> Black, J.<sup>1</sup>, Thompson, A.<sup>1</sup> and Vale, P.<sup>2</sup>, <sup>1</sup>Atkins, UK, <sup>2</sup>Severn Trent Water, UK</p>	<p><b>A systems analysis of micropollutant risks in municipal wastewater treatment in the context of the EU 2022 UWWTD update proposals</b> Palmer, S., Stantec, UK</p>	<p><b>Nereda AGS operational optimisation experience; nitrogen, energy and effluent quality</b> Lavender, P. and Townend, N., Royal HaskoningDHV, UK</p>
<p><b>An Advanced Filter Technology (AirAdvanced®-Actilayer) for N2O emission reduction</b> Ziye, D.<sup>1</sup>, Cope, E.<sup>1</sup>, Vale, P.<sup>1</sup>, Lewis, C.<sup>2</sup>, Romand, C.<sup>3</sup> and Allegrini, E.<sup>3</sup>, <sup>1</sup>Severn Trent Water, UK, <sup>2</sup>SUEZ, UK, <sup>3</sup>SUEZ, France</p>	<p><b>Combining ozone with biofiltration for advanced wastewater treatment for micropollutant removal</b> Wildgoose, D.<sup>1</sup> and Hübner, U.<sup>2</sup>, <sup>1</sup>Xylem, UK, <sup>2</sup>Xylem Services GmbH, Germany</p>	<p style="text-align: center;"><b>FUTURE CHALLENGES</b></p> <p><b>Integrating Natural-Based Solutions into catchment management: A prototype tool and case study</b> Juan-Garcia, P., Atkins, UK</p>
<p><b>UKWIR project Air Pollutant Emissions across wastewater operations</b> Black, J., Bullen, A. and Wilson, R., Atkins, UK</p>	<p><b>Removal of micropollutants in wastewater, combining treatment technologies</b> Wouters, H.<sup>1</sup>, Nonnekens, J.<sup>2</sup>, Nijhuis, E.<sup>3</sup> and Veenendaal, G.<sup>4</sup>, <sup>1</sup>Brightwork, <sup>2</sup>Waterschap Vechtstromen, <sup>3</sup>RWB Water, <sup>4</sup>NieuWater, Netherlands</p>	<p><b>Happy Mondays or Rainy Days &amp; Mondays? Possible future river water quality and implications for sewage treatment works</b> Heaney, T.<sup>1</sup>, Hankin, B.<sup>2</sup>, Garratt, A.<sup>2</sup>, Wang, C.<sup>2</sup> and Simmons, P.<sup>1</sup>, <sup>1</sup>Environment Agency, UK, <sup>2</sup>JBA Consulting, UK</p>
<p><b>The development and standardisation of water companies' approach to quantify GHG emissions</b> Lewis, C., SUEZ, UK</p>	<p><b>Micropollutant removal using Mecana pile cloth media filtration – the success model for the past 10 years on mainland Europe</b> Cooper-Smith, G.<sup>1</sup>, Fundneider, T.<sup>2</sup>, Kemp, J.<sup>2</sup>, Schäfer, R.<sup>2</sup>, Grabbe, U.<sup>2</sup>, <sup>1</sup>Eliquo Hydrok, UK, <sup>2</sup>Mecana Umwelttechnik GmbH, Switzerland</p>	<p><b>Our challenges AMP8 and beyond</b> Sunner, N., Stantec, UK</p>

NET ZERO & PROCESS EMISSIONS	MICROPOLLUTANTS & EMERGING CONTAMINANTS	FUTURE CHALLENGES
<p><b>Progress in process emissions: developing good practice in the UK and Irish Water Sector</b> Lake, A.<sup>1</sup>, Green, D.<sup>2</sup> and Horton, B.<sup>2</sup>, <sup>1</sup>Jacobs, UK, <sup>2</sup>UKWIR, UK</p>	<p><b>Superfine adsorbents and pile cloth media filtration for the removal of micropollutants</b> Fundneider, T.<sup>1</sup>, Kirchen, F.<sup>1</sup>, Schäfer, R.<sup>1</sup>, Grabbe, U.<sup>1</sup> and Lackner, S.<sup>2</sup>, <sup>1</sup>Mecana Umwelttechnik GmbH, Switzerland, <sup>2</sup>Technische Universität Darmstadt, Germany</p>	<p><b>Intensifying activated sludge using HYBACS</b> Biddle, J., Bluewater Bio, UK</p>
<p><b>Prediction of wastewater treatment greenhouse gas using a real-time model</b> Bungay, S.<sup>1</sup>, Whitmore, A.<sup>1</sup>, Hume, D.<sup>2</sup>, Dempsey, N.<sup>2</sup>, Williamson, K.<sup>3</sup>, Brian, K.<sup>3</sup>, <sup>1</sup>Mott MacDonald UK, <sup>2</sup>Mott MacDonald, New Zealand, <sup>3</sup>Watercare Services, New Zealand</p>		

Wednesday 5<sup>th</sup> July

### KEYNOTE PLENARY

**The Ofwat Innovation Fund – 5 competitions, a lot of learning and more to come**  
Marc Hannis, Principal, Innovation Fund, Ofwat

CSOs & STORMWATER TREATMENT	NUTRIENT REMOVAL & RECOVERY	INNOVATION
<p><b>Opportunities for stormwater treatment – design, construction and operational experiences of United Utilities’ first stormwater wetland at Southwaite WwTW</b> Rands, J., United Utilities, UK</p>	<p><b>Performance and Commissioning experience of new t-cyc™ plant at Hawkhurst South WwTW</b> Hazard, B.<sup>1</sup> and Baloch, I.<sup>2</sup>, Te-Tech Process Solutions, UK, Southern Water, UK</p>	<p><b>Unlocking innovation</b> McNeil, R., Scottish Water Horizons, UK</p>
<p><b>Don't get caught with your pumps down - Using data analytics to improve pump reliability and performance</b> Rolls, M., Specific Energy, UK</p>	<p><b>Meeting below 2 mg/L phosphorus in centrate line using bio-mineral formation technology</b> Soares, A.<sup>1</sup>, Colson, R.<sup>1</sup>, Nair, A.<sup>2</sup> and Stephenson, T.<sup>1</sup>, <sup>1</sup>Cranfield University, UK, <sup>2</sup>Severn Trent Water, UK</p>	<p><b>Application of HRAS PRONOX technology and granular aerobic sludge formation for sustainable WWTPs</b> Carbó, O.<sup>1,2</sup>, Teixidó, J.<sup>1</sup>, Canals, J.<sup>1</sup>, Ordóñez, A.<sup>1</sup>, Magrí, A.<sup>2</sup>, Baldi, M.<sup>1</sup>, Gutiérrez, B.<sup>1</sup> and Colprim, J.<sup>2</sup>, <sup>1</sup>GS Inima Environment, S.A., Spain, <sup>2</sup>LEQUIA. Institute of the Environment, Universitat de Girona, Spain</p>

CSOs & STORMWATER TREATMENT	THE DIGITAL ERA	INNOVATION
<p><b>Effective Measurement of CSOs &amp; River Health for the Environment Act 2021</b> Stevens, R., Proteus Instruments, UK</p>	<p><b>Nereda Low P Trials – Full-scale experience at Failsworth WwTW’s</b> Shields, R.<sup>1</sup>, Shorrocks, C.<sup>1</sup> Lavender, P.<sup>2</sup>, <sup>1</sup>United Utilities, UK, <sup>2</sup>Royal HaskoningDHV, UK</p>	<p><b>Synthesis of Sustainable Catalysts from Waste Materials</b> Crockett, C.<sup>1,2</sup>, Moore, A.<sup>2</sup>, Greenwell, C.<sup>1</sup> and Taylor, R.<sup>1</sup>, <sup>1</sup>Durham University, UK, <sup>2</sup>Northumbrian Water, UK</p>
<p><b>Passive treatment of CSO’s with NbS</b> Naismith, D., Mott MacDonald, UK</p>	<p><b>Exemplar WWTW</b> Wield, N.<sup>1</sup>, Brand, R.<sup>1</sup>, Reid, C.<sup>1</sup> and Radhakrishnan, A.<sup>2</sup>, <sup>1</sup>Scottish Water, UK, <sup>2</sup>Cap Gemini, UK</p>	<p><b>Whole(some) in one: The assessment and management of risks from re-use of treated sewage effluent, an approach developed for irrigation of a golf course in England</b> Smith, S, Pinn, D., Dudley, J., Anwar, A.M., WRc Ltd, UK</p>
<p><b>Reducing sewage spills by controlled holistic optimisation of sewage network systems</b> Woodlands, N., Royal HaskoningDHV, UK</p>	<p><b>Automation – building a foundation and looking to the future</b> Thornton, A.<sup>1</sup>, Addison, R.<sup>1</sup>, Flax, S.<sup>2</sup>, <sup>1</sup>Hach, UK, <sup>2</sup>Hach, USA</p>	<p><b>Bioremediation of oil-rich wastewater, management of sewer FOG deposits with bioadditive products</b> Jawiarczyk, N.<sup>1</sup>, Jefferson, B.<sup>2</sup>, Bajon Fernandez, Y.<sup>2</sup>, Alibardi, L.<sup>2</sup> and Mitchell, G.<sup>3</sup>, <sup>1</sup>Isle Utilities, UK, <sup>2</sup>Cranfield University, UK, <sup>3</sup>Severn Trent Water, UK</p>
<p><b>NET ZERO &amp; PROCESS EMISSIONS</b></p>	<p><b>Sewer pit monitoring and IoT at scale: A Sydney Water case study</b> Trikoulis, S., Kallipr, Australia</p>	<p><b>Nanotechnology - The solution for sustainable wastewater treatment</b> Holland, A., Acorn Water Ltd, Ireland</p>
<p><b>Does the water industry have any chance of getting to net zero?</b> Smith, C., Ward, D., and Horton, B., Stantec, UK</p>	<p><b>Reducing operational cost, carbon and sensor drift through digital innovation</b> Whitmore, A.<sup>1</sup>, Thomas, D.N.<sup>1</sup>, Williamson, K.<sup>2</sup>, Rule, G.<sup>2</sup>, Joseph, T.<sup>1</sup> and Harwin, E.<sup>1</sup>, <sup>1</sup>Mott MacDonald, UK, <sup>2</sup>Watercare Services Ltd, UK</p>	<p><b>ANPHORA® technology: domestic wastewater anaerobic treatment based on the use of Purple Phototrophic Bacteria</b> Zamora, P., Aqualia, Spain</p>
<p><b>A systems analysis of N2O production risks in municipal wastewater treatment across all treatment technologies</b> Palmer, S., Stantec, UK</p>		<p><b>Upgrading septic tanks with nature based flowsheets</b> Dotro, G.<sup>1</sup>, Jefferson, B.<sup>1</sup>, Brown, G.<sup>1</sup> and Kennedy, T.<sup>2</sup>, <sup>1</sup>Cranfield University, UK, <sup>2</sup>Scottish Water, UK</p>

NET ZERO & PROCESS EMISSIONS	MICROPOLLUTANTS & EMERGING CONTAMINANTS	INNOVATION
<p><b>Effect of chemical phosphorus removal on nitrous oxide emissions from trickling filter plants using advanced mathematical models</b> Plano, E., WSP, UK</p>	<p><b>Sorption of pharmaceuticals using Layered Double Hydroxides: Considering environmentally relevant conditions</b> Johnston, A.<sup>1</sup>, Lester, E.<sup>1,2</sup>, Williams, O.<sup>1</sup> and Gomes, R.L.<sup>1</sup>, <sup>1</sup>University of Nottingham, UK, <sup>2</sup>Promethean Particles Ltd, UK</p>	<p><b>Coupling advanced primary treatment and innovative biocatalysts for intensified nitrogen removal: a mid-flight update</b> Nair, A., Microvi, UK</p>
<p><b>Understanding the N<sub>2</sub>O emission pattern of plug-flow activated sludge system with the assistance of intensive real-time process monitoring</b> Ziye, D., Cope, E., Srinamasivayam, B., Ejeman, V., Carliell-Marquet, C. and Vale, P., Severn Trent Water, UK</p>	<p><b>MicroOxi, an efficient micropollutant removal toolbox of Nijhuis Saur Industries</b> Bates, P. and Broeders, E., Nijhuis Saur Industries, UK</p>	<p><b>Rapid MOBilization: Case Study on the accelerated adoption of the Mobile Organic Biofilm (MOB™) process intensification technology</b> Johnson, T.D.<sup>1</sup>, Johnson, B.R.<sup>1</sup>, Calhoun, J.<sup>2</sup> and Bragg, I.<sup>3</sup>, <sup>1</sup>Jacobs, USA, <sup>2</sup>Nuvodaus, USA, <sup>3</sup>Jacobs, UK</p>
<p><b>Using advanced process control to mitigate wastewater N<sub>2</sub>O emissions – A full scale trial</b> Tiesmessen, N., Royal HaskoningDHV, Netherlands</p>		
<p><b>Net Zero – Do Digital Twins have a role to play?</b> Ogden, D.<sup>1</sup> and Ballard, J.<sup>2</sup>, <sup>1</sup>Atkins, UK, <sup>2</sup>Severn Trent Water, UK</p>		

POSTERS
<p><b>Synthesis of sustainable catalysts from waste materials</b> Crockett, C.<sup>1,2</sup>, Moore, A.<sup>2</sup>, Greenwell, C.<sup>1</sup> and Taylor, R.<sup>1</sup>, <sup>1</sup>Durham University, UK, <sup>2</sup>Northumbrian Water, UK</p>
<p><b>Sorption of pharmaceuticals using Layered Double Hydroxides: Considering environmentally relevant conditions</b> Johnston, A.<sup>1</sup>, Lester, E.<sup>1,2</sup>, Williams, O.<sup>1</sup> and Gomes, R.L.<sup>1</sup>, <sup>1</sup>University of Nottingham, UK, <sup>2</sup>Promethean Particles Ltd, UK</p>
<p><b>Reducing operational cost, carbon and sensor drift through digital innovation</b> Whitmore, A.<sup>1</sup>, Williamson, K.<sup>2</sup>, Rule, G.<sup>2</sup>, Joseph, T.<sup>1</sup> and Harwin, E.<sup>1</sup>, <sup>1</sup>Mott MacDonald, UK, <sup>2</sup>Watercare Services Ltd, UK</p>
<p><b>Sludge elimination and more</b> Soteriou, A., and Aleshkina, N., Bio-Ran Ltd, UK</p>

<p><b>Faecal sludge effluent treatment systems urban areas in Bangladesh</b> Islam, M.D.T., NGO Forum for Public Health, Bangladesh</p>
<p><b>Combined processes for the valorization of olive mill wastewater</b> Afonso, A., Oliveira, M., Silvério, K., Fernandes, A., Carvalho, F., Lopes, A. and Almeida, A., Universidade da Beira Interior, Portugal</p>
<p><b>Bioremediation of oil-rich wastewater, management of sewer FOG deposits with bioadditive products</b> Jawiarczyk, N.<sup>1</sup>, Jefferson, B.<sup>2</sup>, Bajon Fernandez, Y.<sup>2</sup>, Alibardi, L.<sup>2</sup> and Mitchell, G.<sup>3</sup>, <sup>1</sup>Isle Utilities, UK, <sup>2</sup>Cranfield University, UK, <sup>3</sup>Severn Trent Water, UK</p>
<p><b>Optimization of phosphorus removal from agro-wastewater by iron desalination treatment residue (Fe-DTR)</b> Ganem, H.E., MIGAL - Galilee Research Institute &amp; Tel-Hai College, Israel</p>
<p><b>Decision-making with our eyes and ears open</b> Bowman, B., Hunt, D.V.L. and Rogers, C.D.F., University of Birmingham, UK</p>
<p><b>Reducing operational cost, carbon and sensor drift through digital innovation</b> Whitmore, A.<sup>1</sup>, Williamson, K.<sup>2</sup>, Rule, G.<sup>2</sup>, Joseph, T.<sup>1</sup> and Harwin, E.<sup>1</sup>, <sup>1</sup>Mott MacDonald, UK, <sup>2</sup>Watercare Services Ltd, New Zealand</p>
<p><b>Investigating the suitability of duckweed for waste management in Irish pig farming</b> Kislioglu, M.S., University College Cork, Ireland</p>
<p><b>Recovery of nutritionally valuable bioproducts from the treatment of industrial wastewater using purple phototrophic bacteria</b> Wada, O.<sup>1</sup>, Vincent, A.<sup>2</sup>, McKay, G.<sup>1</sup> and Mackey, H.<sup>1,3</sup>, <sup>1</sup>College of Science and Engineering, Hamad bin Khalifa University, Qatar, <sup>2</sup>Biological Sciences Program, Carnegie Mellon University, Qatar, <sup>3</sup>University of Canterbury, New Zealand</p>
<p><b>Validation is necessary: density separation of microplastics in freshwater</b> Maher, M., University of Nottingham, UK</p>
<p><b>Application of chitosan-based materials in adsorption of contaminants from wastewater</b> Tamang, M. and Paul, K.K., National Institute of Technology, India</p>

Supporting Organisations

