



# Standards Programme

## Topic C. Wastewater – treatment

### 1. Details of objectives

Long Term Objectives for Topic – see Project Plan below for details	Responsible Water UK <b>Policy Advisory Group</b> and <b>contact</b>
C.1. To ensure that waste water service providers continue to be able to specify and purchase treatment plants of suitable performance	<b>Environment</b> - Sarah Mukherjee
C.2. Benchmark UK and European practice to identify a best practical approach and cost and efficiency of UK practice compared to other countries.	<b>Environment</b> - Sarah Mukherjee
C.3. To ensure that standards for sludge treatment and routes are compatible with the needs of the UK water industry.	<b>Environment</b> - Sarah Mukherjee

Topic	Wastewater - treatment	Sub-topics	Plant - Design, asset condition/maintenance, performance monitoring, products. Quality modelling.
-------	------------------------	------------	---

The topic can be divided into the following key stages:

Planning	Asset condition, renovation techniques, asset management plan
Plant design	Design methods, performance requirements, process selection, design, civil, mechanical & electrical, ICA
Construction and performance testing	Civil engineering works, mechanical and electrical works, installation, ICA, process performance tests
Operational maintenance	Mechanical & electrical maintenance, ICA maintenance, safety
Sludge treatment and routes	Includes performance standards for sludge treatment processes to meet quality guidelines and standards for sludge disposal

# Water UK Standards Programme

## Topic C: Wastewater - treatment

### Current UK practice

European Standards are well developed and in use in the UK.

### Planning

- Planning - EN 12255-11 (General data required).
- Asset condition/inspection renovation – Wide variation between different companies.
- Each Utility has a number of standard documents for - selection, design, purchase, construction of assets/processes/equipment.
- Quality modelling – Urban Pollution Management Manual and individual company practice, wide variations

### Design

- Design - EN 12255-11 (General data required).
- Treatment plant process performance requirements - EN12255-3 (Preliminary treatment), EN12255-4 (Primary sedimentation), EN12255-5 (Lagooning), EN12255-6 (Activated Sludge Processes), EN12255-7 (Biological Fixed Film Processes), EN 12255-8 (Sludge treatment and storage), EN 12255-9 (Odour control and ventilation), EN 12255-12 (Control and automation), EN12255-13 (Chemical Treatment), EN12255-14 (Disinfection), EN12255-Part 15 (Measurement of the oxygen transfer in clean water in aeration tanks of activated sludge plants) and EN 12255-16 (Physical (mechanical) filtration).
- Water Industry Mechanical and Electrical Specifications – defines the requirements for the performance, construction, design and testing of mechanical and electrical components used in the Water Industry such as pumps, blowers, scrapers, transformers.

### Construction and performance testing

- Requirements for structures, which are specific to wastewater treatment plants - EN12255-1 (Construction)
- Bidding, guarantees, construction, start-up and compliance testing of a wastewater treatment plant - EN 12255-11 (General data required)

### Operational maintenance

- Operation and maintenance requirements – wide variation between the practice in different water companies
- Operational requirements - EN 12255-10 (Safety principles)

### Sludge treatment & routes

- A number of EEC Directives and guidelines exist and are updated on a regular basis.
- Council Directive 75/442/EEC on waste. Amended by Council Directive 2006/12/EC on waste.
- Council Directive 2000/76/EC on the Incineration of Waste.
- COM(2006)231 Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions. Thematic Strategy for Soil Protection.
- COM(2006)232 Proposed Directive establishing a framework for the protection of soil and amending Directive 2004/35/EC

## Water UK Standards Programme

### Topic C: Wastewater - treatment

- Sludge recycling to land. Draft in progress – may include limits for organic contaminants as well as stricter limits for metals in sludge and soils, and pathogens.
- Consultation Paper – Proposal to amend the statutory controls for the agricultural use of sludge. (Oct 2002 PB 7142 DEFRA) (Rev SI 880 1990)
- CEN/TC 308 Characterisation of sludge – Good Practice for Sludge Drying and related reports. Also activities of HORIZONTAL on concerted methods of analysis
- Biosolids, soils and biowastes within EU soil strategy, still in formative stages.

#### Current issues and pressures

- MCERTS and instrumentation.
- OFWAT seek continuous improvement on the part of Water Companies for the installation of new assets.
- EU – water framework directive – content with respect to wastewater treatment works and threats need to be monitored as the Environmental Regulator provides greater definition of the requirements.
- Restrictions on the application of sludge to agricultural land, establishing a "level playing field".
- EU Soil Framework Directive
- Revision of the EU Sewage Sludge Directive.
  
- Co-digestion of sewage sludge and other bio-wastes.
- Changes to landfill practice as a result of the Landfill Directive.
- Endocrine disruptor/oestrogen removal.
- Phosphate removal.
- Priority Substances Directive – control at source.
- Avoiding the forced introduction of unproven technologies.
- UK input to prEN 1085 (Wastewater Treatment - Vocabulary).
- Effects of the Marine Strategy Framework Directive  
The Directive sets out a number of key requirements and Member States must:

Deadline	Action
By July 2010	Transpose the Directive
By July 2012	Undertake an initial assessment of marine waters;
	Determine a set of characteristics of and comprehensive targets and indicators to guide progress to Good Environmental Status.
By July 2014	Establish and implement a co-ordinated monitoring programme for the on-going assessment of Good Environmental Status.
By December 2015	Develop a programme of cost effective measures to achieve Good Environmental Status.
By December 2016	Implement the programme of measures.

- The Renewables Obligation Order 2009 and bio-methane gas standards.
- Energy efficiency.
- Membrane treatment.
- Soil guideline values – contamination.

**Water UK Standards Programme**  
Topic C: Wastewater - treatment

Long-term objectives

**Objective C.1: To ensure that waste water utilities continue to be able to specify and purchase treatment plants of suitable performance**

Protect the current design, construction and operational performance by ensuring that there continues to be a common set of functional performance requirements in the European Standards that meet the requirements of UK plant operators.

Ensure the performance requirements in the European Standards allow for an iterative risk-based intervention approach to meet lowest whole life costs.

**Objective C.2: Benchmark UK and European practice to identify a best practical approach and cost and efficiency of UK practice compared to other countries.**

Benchmark UK and European company practice to identify a best practical approach (taking into account the cost of service, the affordability of the area and the industry's requirement to meet the needs of the common framework) for:

- Urban pollution planning;
- Deployment of new assets;
- Operation and maintenance of existing assets.

**Objective C.3: To ensure that standards for sludge treatment and routes are compatible with the needs of the UK water industry**

Protect the UK water industry's needs by ensuring that:

- maximum flexibility is maintained in sludge routes;
- innovation is promoted in treatment and disposal;
- unnecessary obligations for monitoring of sludge are not introduced

Note: Objectives could be extended in future to cover materials and products that are used in, or disposed of to, the sewer system. Prevention of the sale/supply of products that cannot be removed prior to or at the treatment works.

**Water UK Standards Programme**  
Topic C: Wastewater - treatment

2. Project plan to deliver each long-term objective

Objective/ Project	Potential collaborators	Topic Advisor, PAG and Contact	Project Activity	Specific activity in 2010/11 including Water UK Networks
Objective C.1. To ensure that waste water service providers continue to be able to specify and purchase treatment plants of suitable performance				
C.1.1 Common set of functional performance requirements in the European Standards that meet the requirements of UK plant operators.		Andy Wall Environment Sarah Mukherjee	Attend TC165 (Wastewater Engineering) + B/505  Reps – Don Ridgers and Nick Orman	Influence new work items & scope plus early warning of activities.
	CLG	Andy Wall Environment Sarah Mukherjee	Attend B/505/40/P2 (Revision EN 1085, Wastewater treatment. Vocabulary)  Note: New Rep Required	Ensure UK Water industry requirements are reflected in European Standards.  Watching brief for proposed revisions to standards.
C.1.2 Performance requirements in the European Standards allow for an iterative risk-based intervention approach to meet lowest whole life costs.			Attend B/505/40/P2  Note: New Rep Required	Ensure requirements are reflected in European Standards.  Watching brief for proposed revisions to standards.

**Water UK Standards Programme**  
Topic C: Wastewater - treatment

Objective/ Project	Potential collaborators	Topic Advisor, PAG and Contact	Project Activity	Specific activity in 2010/11 including <b>Water UK Networks</b>
Objective C.2. Benchmark UK and European practice to identify a best practical approach and cost and efficiency of UK practice compared to other countries.				
C.2.1 Benchmark UK and European practice to identify a best practical approach for urban pollution planning taking into account per capita costs.		Andy Wall Environment Sarah Mukherjee		Allocated to <b>Wastewater Network</b> : Review current approaches in UK and Europe.  Review results and understand why differences arise  Prepare briefing paper identifying way forward.
C.2.2 Benchmark UK and European practice to identify a best practical approach for deployment of new assets.		Andy Wall Environment Sarah Mukherjee		Allocated to <b>Wastewater Network</b> :  Review current approaches in UK and Europe.  Review results and understand why differences arise.  Prepare briefing paper identifying way forward.
C.2.3 Benchmark UK and European practice to identify a best practical approach for operation and maintenance of existing assets.		Andy Wall Environment Sarah Mukherjee		Allocated to <b>Wastewater Network</b> :  Review current approaches in UK and Europe.  Review results and understand why differences arise.  Prepare briefing paper identifying way forward.

**Water UK Standards Programme**  
Topic C: Wastewater - treatment

Objective/ Project	Potential collaborators	Topic Advisor, PAG and Contact	Project Activity	Specific activity in 2010/11 including Water UK Networks
Objective C.3. To ensure that standards for sludge treatment and routes are compatible with the needs of the UK water industry				
C.3.1 Maximum flexibility is maintained in outlets for sludge.		Andy Wall Environment Sarah Mukherjee	Attend CEN TC/308 and mirror group EH/5. Rep – Peter Soulsby	Maintain influence in routes for use and disposal of sludge.
C.3.2 Innovation is promoted in treatment and disposal.		Andy Wall Peter Soulsby Environment Sarah Mukherjee	No specific activities identified.	No specific activities identified.
C.3.3 Unnecessary obligations for monitoring of sludge are not introduced.		Andy Wall Peter Soulsby Environment Sarah Mukherjee	Attend CEN TC/308 and mirror group EH/5. Rep – Peter Soulsby	Ensure CEN Codes of Practice are published as Reports, rather than Standards. Maintain influence in risk assessment methodology.
C.3.4 The advantages of sludge routes to land are promoted.		Andy Wall Peter Soulsby Environment Sarah Mukherjee	Attend CEN TC/223 and mirror group AW/20 Attend EH/4. Rep – Peter Soulsby	Maintain stance against negative comments on biosolids.