



Standards Programme

Topic H. Water – treatment

1. Details of objectives

Long Term Objectives for Topic – see Project Plan below for details	Responsible Water UK Policy Advisory Group and contact
H.1: To ensure that standards for water treatment chemicals are compatible with the needs of the UK water industry (scope for innovation and cost effective water treatment)	Drinking Water – Jim Marshall Environment - Sarah Mukherjee
H.2: To resist demands for European Standards for water treatment processes and limit the impact of potential standards for water treatment processes to allow innovative development and cost optimisation.	Drinking Water – Jim Marshall Environment - Sarah Mukherjee
H.3: To ensure that standards for water treatment sludge are compatible with the needs of the UK water industry.	Drinking Water – Jim Marshall Environment - Sarah Mukherjee

Topic	Water - Treatment	Sub-topics	Chemicals Process Plant Disposal of sludge
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The topic can be divided into the following key stages:

Specifications for water treatment chemicals	Content of active ingredient, content of impurities and by-product, sampling and analytical methods
Functional specifications for chemical generation equipment	Design and operational criteria for equipment used to generate chemicals in situ
Specification for water treatment processes	Process design, process specification, process performance
Waterworks sludge	Characterisation, treatment, disposal

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Current UK practice

Water treatment chemicals

- Companies are referring to CEN standards (where they exist) in procurement documentation
- May specify more stringent requirements in certain cases when justifiable in terms of process performance and treated water quality (e.g. insoluble in lime)
- Where standards do not exist tend to rely on suppliers' specifications
- Chemicals have to be used in accordance with any National Conditions of Use (prescribed by the Secretary of State in the list of approved products published by DWI)

Functional specifications

- Companies may have their own in-house criteria
- There is one CEN document (a CEN Report, not a Standard) for ozonation equipment but it is not clear whether any companies are using this
- There is no perceived need by the UK water industry for standards in this area

Specifications for processes

- The water industry specify process performance and other criteria and then evaluate proposals from suppliers
- The UK water industry does not want standards for water treatment processes as this could introduce unnecessary constraints and stifle innovation
- The Secretary of State (through DWI) has the power to require approval for processes but has not invoked it to date

Sludge

- Production of waterworks sludge in the UK approx. 131,000 tonnes dry solids per annum consisting 44% alum coagulant sludge, 32% ferric coagulant sludge, 18.5% softening sludge, 4.5% natural (slow sand) sludge and 1% 'other' sludge.
- Common disposal routes are landfill (75980 tonnes p.a.) and sewage treatment (37990 tonnes p.a.). Other minor disposal routes include agricultural land and beneficial uses e.g. soil conditioners and brick/cement production
- Treatment and disposal of coagulant sludge (99560 tonnes p.a.) present the greatest difficulty to the water industry. It arises from clarification and filtration processes at low solids concentrations and is dose with polyacrylamide polyelectrolyte prior to thickening and dewatering. Dewatering characteristics are poor and sludge is of limited beneficial use.

Current issues and pressures

- There may be an issue with DWI aspirations for the quality of chemicals and the water industry's desire to purchase products at an economic price whilst achieving water quality standards.
- Some countries press for higher standards of purity than are necessary and/or impose additional National approvals. In the UK a chemical that conforms to a BS EN can be used provided that any National conditions of use are followed.

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- Any change to the drinking water Directive could necessitate revisions to CEN standards for water treatment chemicals because there is an unwritten link between the two.
- The UK water industry does not want standards for water treatment processes and DWI and BSI have historically supported this stance. However, pressure to develop such standards has come from some other countries (notably France, Belgium, Italy and Portugal).
- Increasing disposal costs, including transport costs, and landfill charges and tax.
- Restrictions on the application of sludge to agricultural land.
- Changes to landfill practice as a result of the Landfill Directive.
- Water treatment sludge is classified as non-hazardous waste (19 09 02) in the European Waste Catalogue. Since July 2004 water treatment sludges consigned to landfill have only been allowed to be disposed at landfills permitted to accept non-hazardous waste. The implementation of the Landfill Directive has changed landfill classification, and imposed waste acceptance procedures and waste acceptance criteria (WAC). Quantitative WAC (e.g. limits on total organic carbon and leachable metals and ions) have been set for three classes of landfill: inert waste landfill, hazardous waste landfill and stable, non-reactive hazardous waste landfill. There are currently no quantitative WAC for non-hazardous waste, such as water treatment

sludge, but qualitative WAC do continue to be applied to landfills for non-hazardous waste on a site-specific risk assessment basis.

- Pre-landfill treatment of non-hazardous wastes will be required from October 2007. The levels of biodegradable waste accepted at landfill will be progressively reduced as the landfill diversion targets take effect. Currently, the biodegradable component of municipal solid waste is the primary target for diversion, however, diversion of other organic waste will be achieved through the introduction of the requirement to pre-treat waste prior to landfill. This has already been introduced for hazardous waste.
- Current work in TC 164/WG9 on treatment chemicals for swimming pools – need to keep watching brief until work on chemicals for water supply recommences.

Long-term objectives

Objective H.1: To ensure that standards for water treatment chemicals are compatible with the needs of the UK water industry (scope for innovation and cost effective water treatment)

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

- Chemical quality specifications are not unnecessarily tight
- There is adequate flexibility (e.g. through the use of different grades or types) to meet the UK water industry's needs
- Standards accommodate the development of innovative products (e.g. granular ferric hydroxide) that are being used by the UK water industry.

Objective H.2: To resist demands for European Standards for water treatment processes and limit the impact of potential standards for water treatment processes to allow innovative development and cost optimisation.

To avoid unnecessary standards and requirements that would constrain the UK water industry and stifle innovation.

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

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- Disposal of waterworks sludge to sewer would be treated as a 'trade effluent' and would have to meet the requirements of the relevant sewage undertaker.
- Disposal of waterworks sludge to agricultural land would require the sludge to meet the relevant legislation and regulations.
- Disposal of waterworks sludge to watercourse would not be permitted; the discharge of sludge supernatant (produced after a period of settlement) might be permissible and would have to meet the requirements of a 'Consent to Discharge', issued by the relevant regulatory authority.
- As a non-hazardous waste, waterworks sludge does not need to comply with any qualitative landfill WAC (notably the limits on TOC which are frequently exceeded due to the removal of natural contaminants (colour and turbidity) from raw water. The banning of direct landfill will in future necessitate its biological, physical, chemical or thermal treatment.

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2. Project plan to deliver each long-term objective:

Review need for active participation in standards development for waterworks sludge. Review implications of REACH.

Objective/ Project	Potential collaborators	Topic Advisor, PAG and Contact	Project Activity	Specific activity in 2011/12 including Water UK Networks
Objective H.1. To ensure that standards for water treatment chemicals are compatible with the needs of the UK water industry (scope for innovation and cost effective water treatment)				
H.1.1 Chemical quality specificat'ns are not unnecessa'y tight.		Eddie Lintott Drinking Water Environment Jim Marshall Sarah Mukherjee	Attend CEN TC 164/WG9 (Water Treatment) + CII/59. Rep Peter Jackson	Influence new work items and scope plus early warning of activities.
			Attend CEN TC 164/WG9, TGs 3 (sodium salts), 6 (disinfection chemicals), 8 (organic flocculants) and 9 (filtering materials). Rep Peter Jackson	Finalise prEN 14805 (NaCl for electro- chlorination) and revision of ~20 standards under the responsibility of TGs 6, 8 and 9. Monitor TG 2 (Al & Fe salts) [currently dormant].
H.1.2 There is adequate flexibility to meet the UK water industry's needs.		Eddie Lintott Drinking Water Environment Jim Marshall Sarah Mukherjee	As H.1.1.	Monitor specifications in draft standards. Consult with WI and manufacturers.
H.1.3 Standards accomm'ate the development of innovative products.	DWI	Eddie Lintott Drinking Water Environment Jim Marshall Sarah Mukherjee	As H.1.1.	As H.1.2 and consult DWI regarding recently approved chemicals (that do not have an EN).

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Objective/ Project	Potential collaborators	Topic Advisor, PAG and Contact	Project Activity	Specific activity in 2011/12 including Water UK Networks
Objective H.2. To resist demands for European Standards for water treatment processes and limits the impact of potential standards for water treatment processes to allow innovative development and cost optimisation.				
H.2.1 To avoid unnecessary standards and requirements that would constrain the UK water industry and stifle innovation.		Eddie Lintott Drinking Water Environment Jim Marshall Sarah Mukherjee	Attend CEN TC164/WG9. Rep Peter Jackson	Monitor agenda and raise objection to any suggestion to standardise processes or similar activity.
Objective H.3. To ensure that standards for water treatment sludge are compatible with the needs of the UK water industry				
H.3.1 Disposal of waterworks sludge to sewer.		Eddie Lintott Drinking Water Environment Jim Marshall Sarah Mukherjee		Allocated to Drinking Water Quality Network : Review need for industry wide guidance.
H.3.3 Disposal of waterworks sludge to landfill.		Eddie Lintott Drinking Water Environment Jim Marshall Sarah Mukherjee		Through relevant Water UK network , organise workshop to disseminate effects of landfill directive on water industry practice.