CONDITION R COMPLIANCE CODE



Contents

Compliance Statement

- Section 1 Background
- Section 2 Six Competition Principles
- Section 3 Preventing undue preference or discrimination
- Section 4 Maintaining confidentiality and dealing with information fairly
- Section 5 How do we comply and who do we ask for help?
- Section 6 Consequences for breach and how to report

Glossary

Note on technical terms:

This Compliance Code contains a number of technical terms. Where a word is in *italics*, an explanation of its meaning is provided in the Glossary on page 14.

Version:

1.3 30 September 2021

Compliance Statement

South West Water is committed to complying with our obligations under *competition laws* and our *Instrument of Appointment* (the licence under which we operate). We believe that competition in water and waste water services provides benefits to customers, to South West Water and to the water industry as a whole.

We recognise the extra duties placed upon us by virtue of being in a *dominant position* in our region and that our actions are important for creating a *level playing field*. South West Water must act to ensure that all customers and market participants are treated fairly and equally.

Condition R of our Instrument of Appointment requires South West Water to have in place a Compliance Code to cover fair competition processes. The processes must ensure that South West Water does not show undue preference or undue discrimination in relation to water supply and/or sewerage licensees (WSSLs) and their customers and in relation to wholesale market participants which provide wholesale services. The processes must also ensure that South West Water does not misuse their confidential information.

In April 2016, Bournemouth Water merged with South West Water. This Compliance Code covers the areas supplied by both Bournemouth Water and South West Water. However, it should be noted that WSSLs do not currently operate in the Isles of Scilly.

Each South West Water staff member is responsible for working in line with *competition law* obligations. This Compliance Code has been prepared to assist staff in doing so. It is intended to help South West Water staff support compliance, understand our obligations and recognise potential problem areas. This Compliance Code should be read alongside the requirements of *Condition R* and *Condition E1*, South West Water's *Network Access Code* and guidance from *Ofwat*.

All line managers must ensure that their staff have received proper instruction and training to put these requirements into practice, in particular where those staff have a business need to access information about *non-household* customers, *WSSLs* or *wholesale market participants*. Any member of staff who has any questions concerning what they need to do to meet these obligations should discuss them with their line manager or raise them directly with the Risk and Compliance Manager.

This Compliance Code contains a number of technical terms. Where a word is in *italics*, an explanation of its meaning is provided in the Glossary at the end.

South West Water will review this Code at least once a year to ensure that it is up to date with the current law and South West Water's operations.

Susan Davy
Chief Executive

30 September 2021

Section 1 - Background

South West Water is required by *competition law* and by our *Instrument of Appointment* (in particular *Condition R and Condition E1*) to uphold and support *fair competition* in South West Water's network area.

What do we mean by fair competition?

Fair competition means different participants competing on a level playing field to provide the best services within a particular market. It means that all participants have a fair opportunity of taking part and being successful within that particular market – whether they are well-established or a new entrant. Fair competition provides a wide range of benefits for the consumers of that market by providing choice, by improving cost efficiency and quality and by stimulating innovation.

The English water industry is divided into two main markets: the *wholesale market* for *wholesale services* and the *retail market* for *retail services*:

- Wholesale services means abstracting and treating water from the environment,
 distributing that water to premises through a water supply network, receiving waste
 water into a sewer network and treating that waste water to a suitable standard so that it
 can be returned to the environment. South West Water provides the majority of
 wholesale services in its network area but there are also other wholesale market
 participants that compete with South West Water to provide certain services (see below).
- Retail services means setting up customer accounts, monitoring customer usage to
 calculate bills, issuing bills to customers and resolving customer queries. South West
 Water provides retail services to household customers only while WSSLs provide retail
 services to non-household customers.

The sections below describe the main types of organisations that South West Water is likely to engage with as market participants:

WSSLs and Non-household customers

Non-household customers (except those in the Isles of Scilly¹) are able to choose a WSSL to provide their retail services. Where the customer's premises are located within South West Water's network area, the WSSL will need to access South West Water's wholesale services for that customer.

South West Water may be contacted by *WSSLs* (and potentially by *non-household* customers) for a variety of reasons, for example to obtain specific information necessary for a *WSSL* to provide a price or other information for the supply of water or waste water to a new customer.

South West Water is not a *WSSL* but it is affiliated to a *WSSL* called *Pennon Water Services* (which trades under the name Source for Business) because South West Water and *Pennon Water Services* are both part of the Pennon Group of companies.

Wholesale market participants: New Appointees (NAVs)

A *NAV* is created where a company is appointed by *Ofwat* to provide water and/or sewerage services for a specific geographic area. A *NAV* is an appointed company that replaces a

¹ South West Water's licence was modified with effect from 1 April 2020 to incorporate the Isles of Scilly. There is currently no Non-household retailer on Isles of Scilly. The current arrangement is that South West Water will serve the customers classified as Non-household as a 'quasi retailer' until April 2025.

statutory undertaker, like South West Water, in a particular geographic area. It may have household customers and may supply water to *WSSLs*.

Some *NAVs* will have their own water resources, water treatment works and sewage treatment works (often referred to as full-service *NAVs*). Other *NAVs* provide the "last mile" infrastructure for supplying water and waste water services to a particular site but do not have the complete infrastructure that their customers need and so will need to purchase *wholesale services* from South West Water.

South West Water may be contacted by *NAVs* to discuss *wholesale services* that South West Water may provide to them, for example bulk water supplies.

Wholesale market participants: Self-Lay Providers (SLPs)

If a building development requires a new water main or sewer, the developer may engage South West Water's developer services team to install the pipework. Alternatively, the developer may choose their own contractor to do the same work, which is known as self-lay.

South West Water may be contacted by *SLPs* or developers seeking information about the requirements for self-lay, the costs for South West Water to lay a water main or sewer or the payments available for self-lay.

Wholesale market participants: other emerging markets

Condition E1 also requires South West Water to uphold and support fair competition in other emerging areas of wholesale services:

- provision of water resources (such as building and operating reservoirs and water treatment works)
- Demand Management (activities connection with the promotion of the efficient use of water and the reduction of demand)
- Leakage Services (activities connected with the discovery and repair of unplanned or unintended leaks)
- Bioresources (activities connected with the transport, treatment and disposal of sludge produced by sewage disposal works)

When dealing with market participants, South West Water must uphold and support fair competition. The next section sets out the Six Competition Principles that South West Water should apply to achieve this.

Section 2 - Six Competition Principles

This Compliance Code provides guidance to assist staff in dealing with all interactions between South West Water and WSSLs (including Pennon Water Services) and wholesale market participants in a manner that avoids any possibility of anti-competitive behaviour, be it deliberate or unintentional.

These Competition Principles are designed to ensure that South West Water meets the requirements of *competition law* and the competition requirements in its *Instrument of Appointment* under *Condition R* sections 5, 6 and 7 and *Condition E1*.

The Six Competition Principles are:

South West Water and its staff at all levels must not:

- 1. apply different treatment in our dealings, unless there is a valid and objective reason for doing so
- 2. take any action or enter any agreement or arrangement which has the object or effect of restricting, distorting or preventing competition
- 3. abuse South West Water's dominant position
- 4. obtain an unfair commercial advantage through our dealings
- 5. use or disclose commercially sensitive information except in the manner agreed with the discloser
- 6. Deal with Pennon Water Services in any way except at "Arm's Length"

The next sections of this Compliance Code explain the requirements of *Condition R* and *Condition E1* and how South West Water can meet these by applying the Six Competition Principles.

Section 3 - Preventing undue preference or discrimination

Under *Condition R* and *Condition E1*, SWW is required to prevent undue preference or discrimination.

Preventing undue preference or discrimination in relation to WSSLs in the retail market

- South West Water must ensure that its behaviour and practices supports a level playing field between WSSLs in the retail market. South West Water is not part of the retail market but its actions can affect it by favouring or discriminating against WSSLs (either deliberately or unintentionally). The requirement to prevent undue preference or discrimination extends to non-household customers too so South West Water must consider how its behaviour and practices will affect them.
- South West Water can prevent undue preference and discrimination by following the first two Competition Principles:
 - South West Water and its staff at all levels must not:
 - 1. apply different treatment in our dealings, unless there is a valid and objective reason for doing so
 - 2. take any action or enter any agreement or arrangement which has the object or effect of restricting, distorting or preventing competition
- We must also remember that South West Water is affiliated to Pennon Water Services
 because both companies are part of the Pennon Group. Because of this, South West Water
 must follow the sixth Competition Principle to deal with Pennon Water Services at "Arm's
 Length".
 - South West Water and its staff at all levels must not:
 - 6. deal with Pennon Water Services except at "Arm's Length"
- An "Arm's Length" deal is one where each party acts independently to achieve its own commercial best interests, ignoring any connection that it might have to the other party. If the parties collude to achieve a particular outcome for example they agree to put the interests of one party first because they are owned by the same person and believe this will benefit their owner then this would be in breach of the "Arm's Length" dealing requirement. South West Water can achieve the "Arm's Length" requirement by treating Pennon Water Services in the same way as it would treat any unaffiliated WSSL.
- The following are examples of behaviours or practices that breach the Competition Principles and could constitute undue preference or discrimination:
 - South West Water decides to apply different wholesale charges to the same types of non-household customer based purely on which WSSL supplies water or sewerage services to those customers.
 - South West Water prioritises dealing with water supply complaints or queries from one particular WSSL over another because it prefers working with that WSSL.
 - South West Water provides preferential credit terms for one WSSL because it knows that it is struggling to make payments.

 South West Water allows some of its staff to provide IT support services to Pennon Water Services free of charge while Pennon Water Services is recruiting. This constitutes a cross-subsidy.

Preventing undue preference or discrimination in relation to wholesale market participants

- South West Water must ensure that its behaviour and practices support a level playing field between wholesale market participants. South West Water is part of the wholesale market and has a dominant position by virtue of the historic monopoly structure of the English water industry. This means that, in addition to the first two Competition Principles, we must follow Competition Principles 3 and 4:
 - South West Water and its staff at all levels must not:
 - 1. apply different treatment in our dealings, unless there is a valid and objective reason for doing so
 - 2. take any action or enter any agreement or arrangement which has the object or effect of restricting, distorting or preventing competition
 - 3. abuse South West Water's dominant position
 - 4. obtain an unfair commercial advantage through our dealings
- The following are examples of behaviours or practices that breach the Competition Principles and could constitute undue preference or discrimination:
 - A new market participant approaches South West Water with an offer to build and operate a new reservoir and water treatment works in exchange for a per megalitre fee. South West Water knows that it has a dominant position and so uses its position to drive down the fee. In the end, the fee is much lower than the costs that South West Water would pay if it built and operated the water treatment works itself.
 - South West Water uses its conversations with NAVs to find out which developers are planning significant developments locally and then uses this information to contact developers and provide developer services quotes which undercut quotes from NAVs and SLPs.
 - South West Water decides to provide help and assistance for a particular NAV because some of the staff at the NAV used to work for South West Water. South West Water does not help any other NAVs in this way.
 - South West Water and a new sludge disposal company enter a research and development agreement to produce new technology for extracting energy from sludge. As part of this agreement, South West Water promises to work exclusively with this company and not to work with any of its competitors.
 - Another water company tells South West Water that an SLP has produced very poor work in its area. South West Water tells developers and suggests they avoid working with that SLP.
 - South West Water needs to buy pipes for new connections. It knows that a NAV
 needs to buy the same pipes so decides to carry out a joint procurement in order to
 increase the order size and get a better price. Other NAVs are excluded from this
 arrangement.

Section 4 - Maintaining confidentiality and dealing with information fairly

Under *Condition R and Condition E1*, when South West Water sees commercially sensitive information about a *WSSL* or wholesale market participant, it must ensure that it treats the information as confidential and that it does not use or disclose the information to create a competitive advantage for itself or anyone else.

South West Water can maintain confidentiality and deal fairly with information by following Competition Principles 4 and 5:

- South West Water and its staff at all levels must not:
 - 4. obtain an unfair commercial advantage through our dealings
 - 5. use or disclose commercially sensitive information except in the manner agreed with the discloser

Obtaining and disclosing information

South West Water staff must not request from WSSLs or wholesale market participants more information than South West Water requires to carry out its functions and comply with the law.

Disclosing information

South West Water staff should also challenge *WSSL*s or *wholesale market participants* if they believe that they are being asked to provide information that would not normally be publicly available to other *WSSL*s or *wholesale market participants*. Disclosing information selectively could count as undue preference or discrimination.

Using information

South West Water staff must:

- take steps to protect the confidentiality of information they receive from WSSLs and wholesale market participants,
- only use information received for the purpose specified (which must be pre-agreed with the WSSL or wholesale market participant)
- prevent unnecessary disclosure of the information including disclosure within South West Water

South West Water may receive commercially sensitive pricing information, for example where *Wholesale market participants* are submitting bids to provide *wholesale services*. Where South West Water receives such information, it should establish internal information barriers so that the information cannot be used by other parts of the business.

Specific guidance for *non-household* customer contact

If a *non-household* customer requests a visit or calls to discuss *retail services* or a *WSSL*, South West Water staff can speak to the customer and explain the split between *wholesale services* and *retail services* in general terms but should not speak about particular *WSSLs*.

In speaking to a *non-household* customer, staff should not:

- request information about the terms offered by the WSSL (and if the customer starts to share this information, then the customer should be informed that South West Water is not in a position to be told such information)
- discuss the technical competence of a WSSL
- discuss any matters of price or service offering of a WSSL

Section 5 - How do we comply and who do we ask for help?

We apply fair rules and processes consistently and transparently

South West Water has created internal rules and processes which ensure that we treat different *WSSL*s and their customers fairly and keep their information confidential. As the *wholesale market* develops, SWW is also developing rules and processes to ensure that South West Water acts fairly as between itself and the other *wholesale market participants* and keeps their information confidential.

These rules and processes include:

- Putting in place approved contracts before we start working with WSSLs or wholesale market participants
- Publishing charges schedules and new connections charging arrangements so that our charges are fair and transparent
- Publishing details of transactions in South West Water's accounts
- Applying strict accounting processes within Pennon Group to ensure that Pennon Water Services does not receive any benefit or cross-subsidy from South West Water
- Determining who needs to know which information and putting in place internal information barriers

These rules and processes have been built into South West Water's business as usual working practices, including our *Network Access Code*. If members of staff have any questions about how their roles might be affected they should contact their line manager or the South West Water Risk and Compliance Manager (see below).

We provide dedicated points of contact for WSSLs and wholesale market participants

South West Water has dedicated points of contact for the different organisations discussed above that may need to contact South West Water. If you are contacted by one of these organisations, you should re-direct them to the correct point of contact. The table below sets out the dedicated points of contact:

Type of organisation	South West Water dedicated contact
WSSLs (Including Pennon Water Services)	Wholesale Account Management
NAVs	Wholesale Service Desk
SLPs	Developer Services
Any other wholesale market participants	Risk and Compliance Manager

We identify and deal with conflicts of interest

Instances of non-compliant behaviour are most likely to arise where there is a conflict of interest. A conflict of interest is a situation in which the interests or aims of two different parties are incompatible. Staff at South West Water may find that they are in a position where there is a conflict between the interests of:

- different WSSLs (including Pennon Water Services)
- different wholesale market participants
- South West Water and any of the above

Where a conflict of interest does arise, staff will need to carefully manage the situation to ensure that South West Water does not violate the Six Competition Principles.

Staff should notify the Risk and Compliance Manager immediately if they feel that there is a potential conflict of interest. The Risk and Compliance Manager will objectively consider whether there is a conflict and will advise on the best course of action to ensure that the Six Competition Principles are met.

We challenge colleagues on competition compliance matters

South West Water staff are encouraged to challenge each other if they believe that a behaviour or internal practice may be inconsistent with the Six Competition Principles.

We notify questions or concerns to the Risk and Compliance Manager

South West Water Staff should consult the Risk and Compliance Manager if they have any questions about these requirements and should report any potentially anti-competitive behaviour to the Legal Team.

We train our staff

South West Water ensures that its staff are trained on the internal rules and processes that are relevant to their roles.

Line managers are responsible for:

- cascading the contents of this Compliance Code to their teams at least annually or whenever a new version is published
- Discussing the Six Competition Principles with staff to ensure they have considered how these might affect their role and what they need to do to comply

We monitor compliance through the Regulatory Affairs Steering Committee

The Regulatory Affairs Steering Committee reviews, at least quarterly, South West Water's compliance with *competition laws*, the company's *Instrument of Appointment* and this Compliance Code. The group is chaired by the Regulatory Director and is attended by South West Water's Executive Management.

Papers are prepared for standard agenda items by the Risk and Compliance Manager and other personnel with responsibilities for compliance. The papers update the group with South West Water's activities and reports any instances of non-compliance. The Regulatory Director then reports to the South West Water Board on a quarterly basis. This report must include information from the compliance activity log maintained by the Risk and Compliance Manager.

The Regulatory Affairs Steering Committee reviews this Compliance Code at least annually to determine whether any updates are required.

Section 6 - Consequences for breaches and how to report

The Six Competition Principles and the processes mentioned in this Compliance Code have been designed to ensure that South West Water complies with *competition law* and with its *Instrument of Appointment*.

There are serious consequences if South West Water fails to comply with its legal obligations:

- If South West Water, or its group companies, breach the Competition Act 1998, the Company may be fined up to 10% of group turnover for a period of up to 3 years.
- Ofwat has powers to take enforcement action against South West Water for breaching its Instrument of Appointment.
- Competition prosecutions and enforcement action by *Ofwat* will lead to fines, adverse publicity, and reputational damage.
- In some cases, individual employees and directors may also be liable personally for certain offences under the Competition Act 1998 and, if found guilty, could be fined or sentenced to a term of imprisonment.

Breaches of this Compliance Code are treated very seriously by South West Water and may result in disciplinary proceedings being taken against any employee or director involved in the anti-competitive behaviour in accordance with the South West Water Disciplinary Procedure (Human Resources Policy Form QHR-121).

All South West Water staff must report any breach or suspected breach of this Compliance Code (however trivial) or anti-competitive behaviour to the South West Water Legal Team.

Staff may also report breaches or suspected breaches through the South West Water Whistle Blowing policy (Human Resources Policy Form QHR-121). Staff are encouraged to use the Whistle Blowing procedures where they are not comfortable with something they are being asked to do because of compliance concerns.

Glossary of Terms

"Arm's Length"	"Arm's Length" describes the behaviour where parties in a transaction act independently to achieve their own commercial best interests, deliberately ignoring any connection that they might have to each other.
	If parties in a transaction collude to achieve a particular outcome – for example they agree to artificially lower the price because they are owned by the same person and believe this will ultimately benefit their owner – then this would be in breach of the "Arm's Length" dealing requirement.
	The sixth Competition Principle is that South West Water must not deal with <i>Pennon Water Services</i> except at "Arm's Length".
Competition law	Competition law is a body of law designed to maintain fair competition and a level playing field within markets by prohibiting anti-competitive conduct. The Competition Act 1998 and the Enterprise Act 2002 are the key pieces of UK legislation within this body of law.
	The Competition Principles are based on the requirements of <i>competition law</i> .
Condition E1	Condition E1 is a condition under South West Water's Instrument of Appointment that creates two important requirements relating to competition and wholesale market participants:
	1) South West Water must not show undue preference (including towards itself) or undue discrimination against wholesale market participants.
	2) South West Water must restrict the use of information submitted to it in relation to a bid for the provision of wholesale services or submitted by those making enquiries about, or entering into, agreements for the adoption of self-laid infrastructure.
Condition R	Condition R is a condition under South West Water's Instrument of Appointment that creates important requirements in relation to competition and WSSLs:
	1) South West Water must not show undue preference towards or undue discrimination against WSSLs or their customers.
	2) South West Water must treat the information that it receives from WSSLs as confidential and must only use the information for the purposes for which it was provided.
Cross-subsidy	A <i>cross-subsidy</i> is a benefit conferred by one company within a group to another company in the same group without requiring an equal equivalent burden in return. This might mean providing something for free for providing something at a cost that is lower than the true value. <i>Ofwat</i> defines a cross-subsidy as "monetary aid or contributionswhich is not justified by the services received".
	South West Water must not give cross-subsidies to <i>Pennon Water</i> Services because this would be in breach South West Water's Instrument of Appointment and the sixth Competition Principle: that South West

	Water must not deal with <i>Pennon Water Services</i> except at "Arm's Length".
Dominant position	The term <i>dominant position</i> is a <i>competition law</i> concept used to describe a market participant which enjoys a position of economic power that enables it to behave, to a large extent, independently of the competition pressures of the market in which it operates.
	Where a company is in a dominant position, it is under additional competition law duties to ensure that it does not abuse that dominant position to the detriment of other market participants and consumers.
	Historically, South West Water operated on a monopoly basis in terms of nearly all elements of water and waste water services. This meant that consumers within the statutory area had no choice but to use South West Water for most things relating to water and sewerage.
	The Water Act 2014 removed some of the parts of the historic monopolies by creating the conditions for a <i>retail market</i> for <i>non-household customers</i> (in which South West Water no longer participates) and a <i>wholesale market</i> . Within the <i>wholesale market</i> , South West Water holds a dominant position in relation to some wholesale services and must therefore be very careful not to abuse that position to the detriment of smaller market participants, such as <i>SLPs</i> and <i>NAVs</i> .
	The third Competition Principle is that South West Water must not abuse its <i>dominant position</i> .
Instrument of Appointment	The Instrument of Appointment is the key legal document between an English water and sewerage company and the UK Government (represented by the Secretary of State for the Environment).
	The Instrument of Appointment entitles a company to operate as a statutory undertaker for a set geographic area and requires it to comply with a list of licence requirements. <i>Condition R</i> and <i>Condition E1</i> are part of the licence requirements of the <i>Instrument of Appointment</i> .
	A copy of South West Water's Instrument of Appointment is available on Ofwat's website.
Level playing field	A level playing field is a concept in competition law which describes the conditions necessary for fair competition within a particular market. Where there is a level playing field, all market participants have a fair opportunity of taking part and being successful within that particular market – whether they are well-established or a new entrant.
NAVs	A NAV is created where a company is appointed by Ofwat to provide water and/or sewerage services for a specific geographic area. A NAV is an appointed company that replaces a statutory undertaker, like South West Water, in a particular geographic area.
Network Access Code	South West Water's <i>Network Access Code</i> sets out the basis under which South West Water will consider permitting a WSSL to have access to its water supply system. The code follows the guidance issued by <i>Ofwat</i> pursuant to Section 66D(4) of the Water Industry Act 1991.

Non-household	Refers to those premises which are classed as non-household for the purposes of section 17C of the Water Industry Act 1991 or to the occupiers of such premises (non-household customers).
	Non-household customers are able to choose a WSSL to provide retail services whereas household customers are supplied by the appointed statutory undertaker for their geographic area.
	Factories, restaurants and hospitals are examples of non-household premises. <i>Ofwat's</i> detailed guidance on the distinction between household and non-household premises can be found on its website.
Ofwat	The Water Services Regulation Authority – the body responsible for regulating the privatised water industry.
Pennon Water Services	A WSSL that trades under the name Source for Business and is affiliated to South West Water as they are both owned by Pennon Group Plc.
Retail market	The competitive market for retail services for <i>non-household</i> customers through which non-household customers can choose to purchase retail services from <i>WSSLs</i> . There is no retail market for household customers.
Retail services	Retail services means those services relating to payment for water and sewerage services by consumers, including setting up customer accounts, monitoring customer usage to calculate bills, issuing bills to customers and resolving customer queries.
Self-Lay Providers (SLPs)	An <i>SLP</i> is a contractor who installs new water mains or mains sewers on behalf of a developer and who is independent of the statutory undertaker for the area.
Water supply and/or sewerage licensees (WSSLs)	A WSSL is an organisation which hold a water supply and/or sewerage licence under which it is authorised to supply retail services to non-household premises. Some WSSLs may be limited to providing water supplies or sewerage services to their own sites and those of persons associated with them (known as self-supply).
Wholesale market	The competitive market for wholesale services. This market is in an early stage of development compared to the retail market.
Wholesale market participant	A wholesale market participant provides wholesale services in competition with other wholesale market participants. SLPs, NAVs and statutory undertakers, such as South West Water, are wholesale market participants.
Wholesale services	Wholesale services means those services necessary for the physical supply of water and waste water including abstracting and treating water from the environment, distributing that water to premises through a water supply network, receiving waste water into a sewer network and treating that waste water to a suitable standard so that it can be returned to the environment.
	The types of wholesale services where there is competition among wholesale market participants will evolve as the wholesale market develops. <i>Ofwat</i> expects competition in the following areas:

- provision of water resources (such as building and operating reservoirs and water treatment works)
- Demand Management (activities connection with the promotion of the efficient use of water and the reduction of demand)
- Leakage Services (activities connected with the discovery and repair of unplanned or unintended leaks)
- Bioresources (activities connected with the transport, treatment and disposal of sludge produced by sewage disposal works)