Cotton Valley Waste Acceptance Procedure

Sewage Treatment Centres

Anglian Water Services Ltd

Version Control

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1.0	05/01/2023	Document creation	Kate Rider & Tony Moutrie
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1. Scope and Introduction

The scope of this waste acceptance procedure is to define what Anglian Water Services Ltd (AWS) do to ensure wastes are appropriately characterised as far as reasonable possible. This is to safeguard that the receiving Sludge Treatment Centre (STC) is not put at risk from any substance that may harm the treatment processes, biosolids compliance, and ultimately protect the final effluent (FE) discharges into the environment.

Water Recycling Centre (WRC) sites which receive tankered imports of wastes are not included in the scope of this document where they are not co-located on a STCs. Tankered imports are governed by Environmental Permitting Regulations (EPR) and therefore sites either have EPR Permits or EPR Exemptions to operate and import wastes. The annual total quantity of waste accepted at a site will be in line, or less, than the import limit as described on the individual site's EPR Permit or Exemption.

This document is not concerned with imports from the sewer network as this is governed by the Urban Waste Water Treatment Directive (UWWTD). Similarly, Trade Effluent (TE) discharges into the sewer network are not included in this document.

This document refers to low risk wastes, those which are well understood and although individual loads may be variable, the framework of typical value is understood. This classification will apply to sewage and sewage derived wastes (e.g. cess pit, chemical toilet, septic tank wastes).

Only those waste types listed in the environmental permit will be accepted at site.

Anglian Water does not import hazardous wastes and any loads should be rejected.

2. Pre Acceptance

All third party waste pre-acceptance enquiries will require the enquirer to complete the Application for a licence to discharge Domestic Waste at Anglian Water Sites . Domestic Waste Discharge Licence Application.

All enquiries are deemed to have sufficient information to assess if they include the following:

Producer name and address and company number where relevant.
Environment Agency Registered Waste Carrier Licence
Preferred delivery sites
Tanker volume, frequency and variability
Estimated monthly volume per month
Stipulation of wastes to be delivered

The application form provides a restricted list of Anglian Water sites that have been assessed as being suitable to accept domestic waste imports no other sites can be used to accept domestic waste imports.

Where domestic waste application is accepted and the waste stream is to be accepted, the customer will be issued with a written agreement of their movement, including site procedures for delivery and a key fob / code for the site. The agreement will be for one year and will require an application to renew the licence annually.

An annual waste transfer note is provided for the wastes to be accepted which includes the SIC code and waste carriers licence details and if this is not signed and returned by the customer then the domestic waste licence will be suspended.

3. Anglian Water Internal Transfers - Duty of Care Documents

Regular imports of wastes into STCs are noted on season tickets, which consolidate waste transfer notes for ease. AWS tankering department, Water Recycling Operational Logistics, coordinate tankering of AWS wastes into sites therefore this department manage the season tickets as well. The Circular Economy team manage the waste transfer notes and season tickets on behalf of the company. The disposal site is usually not named on the season ticket document as to make it relevant to multiple AWS sites, therefore the season tickets should be used in conjunction with the ticket's Annexes which list all AWS import sites.

4. Waste Acceptance

4.1. EWC codes 16 10 02 and 20 03 04

Waste is imported to sites from 3rd party tanker companies. Tanker companies must be consented to discharge prior to arrival, and within the licence documents are required to stipulate which wastes they are transporting.

The EWCs are split into two codes; 16 10 02 is chemical toilet wastes 'blue loo', whereas 20 03 04 is cess and septic wastes only. These may be mixed loads upon arrival.

Tanker companies must only discharge into sites they have been granted consent to enter, and only into the signed discharge point on site. They must sign into site for safety and record the volume of wastes to be discharged. Where a weighbridge and/or flowmeter installed on site, this must also be used to obtain waste volumes.

Sampling of domestic wastes is done opportunistically by AWS employees to ensure wastes are of domestic origin and samples are analysed by AWS labs. The parameters measured are in the table below. AWS's POSWASTE documents detail that there is a minimum of 1 sample per month per site required for all sites importing domestic waste. Sample results are scrutinised and investigated by Trade Effluent Regulatory Scientists if sample results are above guide quality specifications, as set internally by AWS. Duty of Care documents are requested from tanker companies to investigate waste origin and further investigations are done as needed. Compliance to quality spec standards are monitored monthly by members of the Quality and Environment and are reported to Heads of Department monthly.

Duty of Care documents are handled by the Circular Economy department. Waste transfer notes are provided as needed to Circular Economy, and will detail the composition and EWC coding.

On site segregation of domestic loads is not appropriate on AWS sites as domestic loads are discharged into the head of works (HOW) and do not pass through a buffer tank before blending with indigenous sewage from the sewer network. All AWS sites are existing assets and there is a very low risk of domestic waste discharges causing a negative operational or compliance impact. Similarly, quarantine of domestic waste imports cannot occur due to existing site assets.

Sampling done for the domestic tankered imports:

DOMESTIC IMPORTS *	**Internal AWS limit**
Ammonia	2000 mg/L
COD	50000 mg/L
Phosphate	500 mg/L
TSS	50000 mg/L
Cadmium mg/kg	10 mg/kg
Chromium mg/kg	1000 mg/kg
Copper mg/kg	1750 mg/kg
Lead mg/kg	1200 mg/kg
Nickel mg/kg	400 mg/kg
Zinc mg/kg	4000 mg/kg
Cadmium	No limit set
Chromium	
Copper	
Lead	
Nickel	
Zinc	

*These limits are set based on the internal Biosolids Standards, which are different from our contractual limits for receipt of third-party sewage sludges.

4.2. AW Sludge and 3rd Party sludges (EWC code 19 08 05 sludges from treatment of urban waste water)

AWS STCs accept imports of raw sludge (19 08 05) from other AWS smaller 'satellite sites' via tankers with sight glasses. On the satellite sites, the sludges will be screened in accordance with the EPR discharge permit's requirements, to remove grit and screenings from the incoming sewage. The wastes have therefore been usually been screened before it is tankered to STC sites.

Sampling of every load AWS sludges of is not deemed necessary on reception at the STCs because AWS are aware of the nature and composition of the sludges as it originated from AWS treatment on satellite sites. The suitability of treatment is therefore assumed.

Incoming vehicles delivering imported sludge from other WRCs are directed to the reception import tank via coupled hoses. At the waste acceptance point, there is a light system in place so delivery drivers are aware when discharges can be made. A weighbridge should be used before and after discharge (where available). There is a designated vehicle waiting area for vehicles and the discharge point is located on an impermeable surface with drainage is diverted to the head of the WRC.

The following acceptance procedures are in place:

- Quantity of sludge delivered is measured
- The capacity of the import tank is checked to ensure that there is sufficient storage capacity

● Unloading is undertaken by trained operative

● Documents are checked and recorded via a tracking system (Water Recycling Operations Logistics controlled).

Sludges from 3rd party companies may be accepted at some AWS sites. AWS will accept sludges from 3rd parties only where they meet the same Biosolids Assurance Scheme requirements as sludges from AWS operations. The process for this is detailed in other documents held internally by AWS.

4.3. Sludges entering the Sewage Treatment Centre from on-site Water Recycling Centre

Raw sludges from the on-site WRC enter the STC for biological treatment. The STC receives sludges for treatment in three forms; liquid sludge production from the host WRC which is deemed indigenous sludge, liquid sludge imports by road tanker (liquid import) and dewatered raw sludge cake by bulk tipper (cake imports).

The sludges entering the STC are further screened to remove any remaining grit and screenings from the feed.

A number of parameters are measured through the Sludge Treatment process (on the blend tank, digester feed, on the digester and post digestion, see below) on a regular basis in order to ensure that we understand our process and are able to maintain healthy and efficient digestion, gas production and green energy production. AWS aim to monitor daily but have the target of a 90-95% completion rate which allows for operational issues when sampling or data isn't submitted. The data is captured from instrumentation on site or from manual lab tests carried out in the site lab and all data is submitted to a Microsoft sharepoint list, Excel file and PowerBi dashboard which allows monitoring and trending of data.

Sample parameters are in the table below. These tables may not be exhaustive but are meant to give a reflection of the samples undertaken at the STCs.

FEED SLUDGE	
Liquid Imports	Liquid Imports Volume (M³/Day)
Primary Sludge (unthickend)	Unthickened Primary Sludge Volume (M³/Day)
Primary Sludge (unthickend)	Unthickened Primary Sludge Dry Solids (%)
Primary Sludge (unthickend)	Indigenous Primary Solids (tDS/day)
SAS (unthickened)	Unthickened SAS Volume (M³/Day)
SAS (unthickened)	Unthickened SAS Dry Solids (%)
SAS GBT 1 (thickened)	GBT 1 Thickened SAS Dry Solids (%)
SAS GBT 2 (thickened)	GBT 2 Thickened SAS Dry Solids (%)
SAS (thickened)	Indigenous SAS Solids (tDS/day)
Imported Raw Cake	Imported Raw Wet Cake (t/day)
Imported Raw Cake load	Cake Imports (tDS/day)
Total Sludge Load	Total Solids in Blend (tDS/day)

CAMBI	
Reactor Feed Thickness	Reactor Feed Thickness Dry Solids (%)
Reactor 1 Cycles	Reactor 1 No. of cycles in 24 hours
Reactor 2 Cycles	Reactor 2 No. of cycles in 24 hours
Reactor 3 Cycles	Reactor 3 No. of cycles in 24 hours
Reactor 4 Cycles	Reactor 4 No. of cycles in 24 hours
Reactor Total	Total Reactor cycles in 24 hours (Sum of 4 Reactors Above)
DIGESTER FEED	
Diluted Hydrolysed Sludge	Digester Feed Average Dry Solids (%)
Combined Digester Feed tDS	Solids Feed Rate (tDS/day)
DIGESTER 1, 2, and 3	
Analysis of Digester Sludge	Dry Solids (%)
Analysis of Digester Sludge	pH Dimensionless
Analysis of Digester Sludge	VFA (mg/l)
Analysis of Digester Sludge	Alkalinity (mg/l)
Analysis of Digester Sludge	Ammonia (mg/l)
Analysis of Digester Biogas	Methane content (%)
Digester Temperature	Temperature (°C)
Digester Feed Volume	Actual Feed Volume (M^3/Hr)
Digester Feed Set-Point	Set-Point Feed Rate (M^3/Hr)
Digester Feed (incl. dilution water)	Actual Feed Inc Dilution Water (M^3/Day) Previous 24 hours
Digester Feed Actual Feed Rate	Solids Feed Rate (tDS/day)
Digester Feed Actual Feed Rate	Digester retention time
Digester Loading rate (KgVS/m3)	Digester VS loading Calculation
DEWATERING	
Cake Pad Stock Level	Cake Pad Fill Volume (%)
Centrifuge 1 Cake Dry Solids	Centrifuge 1 Cake Dry solids (%)
Centrifuge 2 Cake Dry Solids	Centrifuge 2 Cake Dry solids (%)
Centrifuge 3 Cake Dry Solids	Centrifuge 3 Cake Dry solids (%)
Average Cake Dry Solids	Avrg. dry solids (%)

4.4. Digested Cake (EWC code 19 06 06)

4.4.1. Storage

On the STC where the digested cake is produced, the biosolid material is sampled regularly throughout the process to ensure it will meet the Biosolid Assurance Scheme standard (BAS). Routine sampling on STCs is detailed in the tables above. These are subject to change as AWS requires and is subject to availability of personnel.

If a cake sample fails Hazard Analysis and Critical Control Point standards (HACCP), the site will put out signs so loads cannot be taken off site and it remain until the sample has passed the BAS standard. The full bay is quarantined from the time the sample fails, to when it has passed the standards required to ensure wastes are not mixed.

There are several sites which serve as storage sites for digested cake (19 06 06) before they can be transported to their destination (e.g. farmland). These may be STCs where large cake bays or areas of hard standing are, or may be smaller rural WRCs which only storing the cake (i.e. no treatment is occurring).

4.4.2. Export to Landbank

Digested cake is exported to land where it meets the BAS standard for land spreading. This is wholly owned and operated by the AWS's Circular Economy team, and is governed by the Sludge Use in Agriculture (SUAR) regulations.

4.5. Raw Cake (EWC code 19 02 06)

Raw cake (19 02 06) is imported into AWS STCs for treatment (or temporary storage prior to treatment). Raw cake is received by bulk tipper trucks. The trucks enter the site and are weighed at a weighbridge before being directed to cake bay. Trucks reverse up to the bunker and the reception bunker door is opened once the lorry is inside before tipping commences. The bunker is fitted with odour extraction and connected to an odour control plant. Fugitive emissions from the bunker during tipping are mitigated by use of an odour surfactant spray system.

Raw cake is imported from other AWS sites where routine sampling was done for pH (must be < pH 13) to determine that the wastes are non-hazardous. Sampling of AWS cake is not considered necessary on reception as it is all AW own raw cake produced at smaller dewatering sites. This testing is deemed sufficient to describe and classify that the material is suitable for treatment.

In the unlikely event that raw cake is tipped in the bunker without consent by the receiving site, the cake bunker can serve as segregation and/or quarantine.

Where raw cake is stored on exterior cake pads it should stored to minimise the risk odours from raw cake stored on STC sites

4.6. Liquor returns

Effluent liquors ("returned liquors") from STCs are pumped to the site's HOW and are treated alongside the crude sewage influent in the WRC. Some sites have dedicated liquor treatment plants which treat effluent prior to discharging to the HOW.

From April 2022 the sampling will include the parameters in the table below.

CRUDE	**LIQUOR RETURN**
Ammonia	Ammonia
Settled BOD	Settled BOD
COD	COD
Total Solids	Total Solids
	PFOS
	PFOA
	Total Nitrogen
	Total Organic Carbon
	Total Phosphate

5. Rejection Procedures

Anglian Water does not import hazardous wastes and any loads should be rejected.

Rejection of domestic waste imports could occur where a tanker company is not consented to discharge, or when the nature of the waste is considered not to be of domestic origin.

Rejection of internal Anglian Water sludge would only happen if the vehicle was not recognised as an AWS vehicle or was suspicious. Suspect vehicle loads would be quarantined on the vehicle prior to authorised discharge.

In the unlikely event that raw cake is tipped in the bunker without consent by the receiving site, the cake bunker can serve as a segregation and/or quarantine area.

If the decision is that the import of any waste cannot be received this will be rejected. All rejected loads will be notified to the third party customer or for internal sludges the relevant managers for the sites (import and export. Details of rejected loads will be recorded.