Trade Waste
Sewer Admission Standards

LOGAN CITY COUNCIL

1. INTRODUCTION

1.1 Trade Waste Definition

The *Water Supply (Safety and Reliability) Act 2008* defines trade waste as water-borne waste from business, trade or manufacturing premises, other than:

- Waste that is a prohibited substance; or
- Human waste (i.e. domestic sewage); or
- Stormwater.

1.2 Acceptance of Trade Waste

Council provides a wastewater system primarily for the transport and treatment of domestic sewage. However, Council may also accept trade waste where it is satisfied that compliance with all legislative requirements and wastewater treatment plant licence conditions will be maintained.

1.3 Trade Waste Implications

Trade waste may contain significantly increased organic strength compared to that of domestic sewage and may also contain other substances such as high levels of fats and grease, heavy metals, organic solvents and chlorinated organic substances. Adverse effects from trade waste discharges include:

- Degradation (corrosion / erosion) of wastewater system infrastructure including pipes, pumps, maintenance holes, equipment and other related assets;
- Greases, fats and other suspended matter can cause wastewater network blockages resulting in flooding of upstream users and spills to the environment;
- Substances can accumulate within the treatment plants causing odours, reduced efficiency, increased maintenance, higher costs and discharges detrimental to the environment;
- Substances can overload or inhibit biological processes at the treatment plants causing the wastewater not to receive adequate treatment prior to discharge;
- Highly volatile substances, which may be flammable or toxic, can endanger personnel and the public, as well as cause damage to the wastewater system;
- Some substances, either individually or combined, may release toxic gases posing a public health hazard and/or affecting the environment. Exposure to volatile and toxic compounds in wastewater poses health risks to personnel;
- Wastes containing toxic materials, heavy metals, pesticides or persistent organic compounds can contaminate biosolids, thereby limiting reuse and disposal options, as well as potentially increasing associated disposal costs; and
- Substances may pass through the treatment plant, untreated or partially treated, polluting the receiving waters and posing a threat to aquatic life, or rendering a watercourse unsuitable as a supply of drinking water or as a recreational resource.

1.4 Trade Waste Management Objectives

Council's objectives in managing the discharge of trade waste to the wastewater system are to:

- Protect and preserve the health and safety of personnel and the public;
- Protect the environment;
- Protect wastewater infrastructure;
- Protect wastewater treatment processes; and
- Facilitate reuse of treated effluent and biosolids.

2. PARTICULARS

2.1 Purpose

Council has established *Sewer Admission Standards* for substances entering the wastewater system in order to achieve the trade waste management objectives. The standards prescribe:

- General substances able to be discharged and the associated concentration limits;
- Controlled substances able to be discharged and the associated concentration limits;
- Prohibited substances which must not be introduced into the wastewater system;
- Analysis methods applied for monitoring discharge quality; and
- Implications of discharges exceeding the specified limits.

2.2 Details

The following details are applicable:

- The standards conform to the *Water Supply (Safety and Reliability) Act 2008*;
- The standards align with the *Australian Sewage Quality Management Guidelines* developed by the Water Services Association of Australia;
- The standards apply at the discharge point from the trade waste pre-treatment devices and/or prior to mixing with dilution flows from non-trade waste sources;
- The dilution of trade waste discharges in order to achieve compliance with the standards is prohibited unless specifically approved by Council;
- Any substances not listed in the standards are deemed to be prohibited substances and must not be discharged unless specifically approved by Council;
- The standards inform the *Charging Framework & Rates* applied to recover costs associated with the additional load placed on the wastewater system; and
- The standards are subject to periodic review and the latest version can be found on Council's website (www.logan.qld.gov.au).

3. GENERAL SUBSTANCES

General substances are typically found in domestic sewage, however may have greater concentration levels in trade waste discharges. Controlling the balance of these substances is necessary to ensure the wastewater system works effectively. Table 1 presents the substances and associated limits.

Table 1: General Substance Limits

General Substances	Symbol	Limit
Ammonia	N	100 mg/l
Biochemical Oxygen Demand	BOD	800 mg/l
Chemical Oxygen Demand	COD	1,200 mg/l
Colour		Note 1
Conductivity		1.6 ms/cm
Methylene Blue Active Substances (Anionic Surfactants)	MBAS	500 mg/l
Non-Filterable Residue (Suspended Solids)	NFR	200 mg/l
Non-Ionic Surfactants		100 mg/l
Potential of Hydrogen	pH	6 – 10
Temperature		38ºC
Total Dissolved Solids	TDS	5,000 mg/l
Total Kjeldahl Nitrogen	TKN	150 mg/l
Total Oil & Grease	TOG	200 mg/l
Total Phosphorus	P	20 mg/l
Per – and poly-fluoroalkyl substances	PFAS/PFOS	TBA

Note 1: Colour not noticeable after 100 times dilution.

4. CONTROLLED SUBSTANCES

Controlled substances are generally not found in domestic sewage and can harm people, the environment and the wastewater system. The following sections detail specific substances and

associated impacts. Council may request demonstrable evidence of biodegradability and toxicity for any controlled substance when assessing suitability for discharge to the wastewater system.

4.1 Metals

Metals generally accumulate within the biosolids produced as part of the wastewater treatment process. As biosolids are used to fertilise agricultural land, high metal concentrations may contaminate the soil over an extended period of time. In addition to the concentration limits, total daily load limits are also enforced for some metals. Table 2 presents the concentration limits for metals.

Table 2: Controlled Substances – Metals

Metal	Symbol	Limit
Aluminium	Al	100 mg/l
Arsenic (excludes organoarsenic compounds)	As	0.5 mg/l
Barium	Ba	5 mg/l
Cadmium	Cd	1 mg/l
Chromium – Total *(refer Note 1)*	Cr	3 mg/l
Cobalt *(refer Note 1)*	Co	5 mg/l
Copper *(refer Note 1)*	Cu	5 mg/l
Iron	Fe	10 mg/l
Lead *(refer Note 1)*	Pb	1 mg/l
Manganese	Mn	10 mg/l
Mercury	Hg	0.01 mg/l
Molybdenum	Mo	5 mg/l
Nickel	Ni	1 mg/l
Selenium	Se	1 mg/l
Silver	Ag	5 mg/l
Tin (excludes organotin compounds)	Sn	10 mg/l
Zinc	Zn	10 mg/l

Note 1: Total daily load limit equals 3 times the concentration limit.

Note 2: Council may impose stricter limits depending on the capacity of the relevant wastewater catchment area.

4.2 Organic & Inorganic Compounds

Organic and inorganic compounds can cause the following significant impacts:

- Health and safety issues for personnel and the public (both short and long term exposure);
- Flammability and increased gas risks;
- Infrastructure degradation;
- Treatment process inhibition;
- Impairment on waters receiving treated effluent;
- Biosolids and treated effluent reuse restrictions; and
- Nuisance odours.

Tables 3 and 4 present the concentration limits for organic and inorganic compounds respectively. For clarify, some prohibited items are also referenced in these tables.

Table 3: Controlled Substances – Organic Compounds

Organic Compounds	Formula	Limit
Aldehydes		
Acetaldehyde	C_2H_4O	5 mg/l
Dimethyl sulphide	C_2H_6S	1 mg/l
Formaldehyde	CH_2O	30 mg/l
Propionaldehyde	C_3H_6O	5 mg/l
Ketones		
Acetone	C_3H_6O	400 mg/l
Methyl Ethyl Ketone (MEK)	C_4H_8O	100 mg/l
Pesticides		
Organoarsenic compounds		Prohibited
Organochlorine pesticides		Prohibited

Organic Compounds	Formula	Limit
Organophosphorus pesticides		Prohibited
Organotin compounds		0.1 mg/l
Petroleum Hydrocarbons		
Benzene	C_6H_6	0.001 mg/l
C_6 – C_9		5 mg/l
Ethylbenzene	C_8H_{10}	1 mg/l
Toluene	C_7H_8	0.5 mg/l
Total		30 mg/l
Xylene		1 mg/l
Phenolic Compounds		
Pentachlorophenol	C_6HCl_5O	5 mg/l
Polybrominated biphenyls (PBB)		Prohibited
Polychlorinated biphenyls (PCB)		Prohibited
Polynuclear Aromatic Hydrocarbons (PAH)		5 mg/l
Total phenols		100 mg/l
Volatile Organic Compounds		
Halogenated compounds		1 mg/l
Tetrachloroethene (perchlorethylene)	C_2Cl_4	0.01 mg/l
Trichloroethene (trichloroethylene)	C_2HCl_3	0.1 mg/l
Trichloromethane (chloroform)	$CHCl_3$	0.1 mg/l

Note 1: Council may impose stricter limits depending on the capacity of the relevant wastewater catchment area.

Table 4: Controlled Substances – Inorganic Compounds

Inorganic Compounds	Symbol	Limit
Boron	B	5 mg/l
Bromine	Br	5 mg/l
Chlorine	Cl	10 mg/l
Cyanide – weak and dissociable	CN	1 mg/l
Fluoride	F	30 mg/l
Sulphate	SO_4	2,000 mg/l
Sulphide – dissolved	S^2	1 mg/l
Sulphite	SO_2	15 mg/l

Note 1: Council may impose stricter limits depending on the capacity of the relevant wastewater catchment area.

4.3 Hydrogen Sulphide

Hydrogen Sulphide (H_2S) is a colourless, toxic, corrosive and flammable gas with a characteristic odour of rotten eggs. It is produced by the decomposition of organic material in anaerobic conditions at low flow velocities and warm temperatures. The rate of release increases at points of high turbulence. The presence of H_2S in the wastewater system can result in the following:

- An extremely hazardous work environment that may cause serious injury or death. Table 5 presents the human exposure limits and associated impacts;
- Under certain condition, H_2S gas can convert into sulphuric acid which can cause accelerated corrosion of assets, particularly concrete and steel structures including pipes, maintenance holes and pump stations. Higher concentration levels will increase the deterioration rate; and
- The release of odours which may cause public complaints and necessitate the installation of odour control measures.

Council has adopted the Safe Work Australia permissible exposure limits for H_2S in the wastewater system (i.e. 10ppm). Where it is determined a trade waste generator is noticeably contributing to the levels of H_2S exceeding the limit, then this will constitute a Trade Waste Approval non-compliance and require the implementation of corrective actions. These actions may include, but not be limited to:

- The establishment of an Effluent Improvement Program (refer **Section 7.3**);
- Suspension or cancellation of the Trade Waste Approval (refer **Section 7.4**); and
- Recovery of any costs associated with the non-compliance (refer **Section 7.5**).

Table 5: H_2S Exposure Limits

Level in Air (ppm)	Impacts
10	Safe Work Australia permissible exposure limits (8 hour time-weighted average).
10 – 20	Borderline concentration for eye irritation.
50 – 100	Leads to eye damage.
100 – 150	Olfactory nerve is paralysed after a few inhalations and sense of smell disappears.
320 – 530	Leads to pulmonary oedema with the possibility of death.
530 – 1,000	Strong stimulation of central nervous system, leading to loss of breathing. 800ppm is the lethal concentration for 50% of humans for 5 minutes exposure.
> 1000	Immediate collapse with loss of breathing, even after inhalation of a single breath.

5. PROHIBITED SUBSTANCES

Prohibited substances are dangerous and must not be introduced to the wastewater system. These substances are specified in Schedule 1 of the *Water Supply (Safety and Reliability) Act 2008*. Further details are provided in the following sections.

5.1 Solid or Viscous Substances

Solid or viscous substances in a quantity, or of a size, that can obstruct sewage flows or interfere with the operation of the wastewater system, are prohibited from discharge to the wastewater system. This includes, but is not limited to:

- Solids with a maximum linear dimension of greater than 13 millimetres and a quiescent settling velocity greater than 3 metres per hour; and
- Animal guts or tissues, paunch manure, bones, hair, entrails, whole blood, feathers, ashes, cinders, sand, spent lime, stone or marble dusts, sawdust, metal, glass, straw, grass clippings, rags, spent grains, waste paper, tar, wood and plastics.

5.2 Medical & Infectious Wastes

Pathological, infectious and cytotoxic wastes are prohibited from discharge to the wastewater system, except as allowed for under applicable State legislation and guidelines. Prohibited substances include, but are not limited to, solid wastes from any hospital, clinic, surgery, laboratory or any other medical or veterinary facility. Examples include sharps, swabs, dressings, human or animal tissue waste.

5.3 Flammable or Explosive Substances

Flammable or explosive solids, liquids or gaseous substances, including petrol are prohibited from discharge to the wastewater system. This specifically includes the introduction of waste streams with a closed-cup flashpoint of less than 60ºC.

5.4 Radioactive Substances

Radioactive substances are prohibited from discharge to the wastewater system, except as allowed for under the *Queensland Radiation Safety Act 1999* and the *Radiation Safety Regulation 2010*.

5.5 Genetically Engineered Organisms

Genetically engineered organisms are prohibited from discharge to the wastewater system unless specifically approved by Council. Council will consult with the Office of the Gene Technology Regulator prior to the issue of any approval.

5.6 Rainwater & Ground Water

Floodwater, rainwater, roof water, stormwater, subsoil water and surface water are prohibited from discharge to the wastewater system, except in the following conditions:

- Where such water is collected and used in substitute for potable water, which in turn is then used to generate trade waste (e.g. rainwater tank connected to a wash bay); or
- Where such water has been modified by commercial activities, Council will regard this water as trade waste and use its discretion whether to accept the discharge (e.g. landfill leachate).

5.7 Other Substances

Other substances prohibited from discharge to the wastewater system include:

- Organic compounds listed in Table 3;
- Any substance having a temperature exceeding 38ºC;
- Any substance where, due to its quantity, is capable either alone or by interaction with another substance of generating any of the following impacts. Generators are deemed responsible for assessing if any discharged substances are likely to produce the impacts described.
    - Inhibiting or interfering with the wastewater treatment process;
    - Causing damage or a hazard to the wastewater system;
    - Causing a hazard for humans or animals;
    - Creating a public nuisance;
    - Creating a hazard in waters into which it is discharged; and
    - Contaminating the environment in places where treated effluent is discharged or reused.

6. DISCHARGE QUALITY MONITORING

Monitoring of trade waste discharges to determine compliance with the prescribed substance limits is undertaken via the collection and analysis of samples from pre-treatment devices. The results are used to calculate charges for excess pollutants, as well as to determine any corrective actions required to be implemented where the pollutants are deemed too excessive to discharge to the wastewater system.

6.1 Sampling Standards

All sampling must be undertaken in accordance with *AS/NZS 5667.10:1998 Water Quality Sampling – Part 10 Guidance on Sampling of Waste Waters*.

6.2 Sampling Methods

Trade waste samples must be representative of the discharge from normal on-site daily operations. Council utilises the following sampling methods:

- **Grab Sample** – a single sample taken to provide a snapshot of the trade waste discharge to determine the concentration of substances at a particular point in time. This is the most common method used by Council.
- **Composite Sample** – comprises a mixture of multiple individual samples collected manually or automatically. Automatic composite samples can be time based or proportional to flow and are used to determine the daily load of particular substances.

6.3 NATA Approved Laboratory

Sample analysis must be performed by a National Association of Testing Authorities (NATA) approved laboratory. A copy of the results must be forwarded to Council within 14 days of the sample being collected. Samples can be analysed by an independent NATA approved laboratory or through Council's NATA approved laboratory on a fee for service basis.

6.4 Audit Samples

Council reserves the right to collect audit samples to determine the level of pollutants discharged from pre-treatment devices. Theses samples will be analysed at Council's NATA approved laboratory. The cost of audit samples will be borne by Council.

6.5 Deemed Analysis Results

Based on the risk to the wastewater system, the volumes discharged and the consistency of previous samples, Council may deem the analysis results for a pre-treatment device to determine any applicable excess pollutant charges.

Council may undertake audit samples to confirm continued alignment with the deemed analysis results. Significant variances (increases or decreases) may result in adjustment to the excess pollutant charges or the need to implement a regular sampling program.

6.6 Regular Sampling Program

Where deemed analysis results are not applied by Council, trade waste generators will be required to have samples regularly collected and analysed to determine the level of excess pollutants. Table 6 outlines the requirements. The cost of these samples will be borne by the trade waste generators.

Table 6: Sample Analysis Requirements

Item	Description
Frequency	• Sampling frequency will be determined by Council based on the risk to the wastewater system, the volumes discharged and previous sample results. • The Trade Waste Approval issued for the property will detail the required sampling frequency for each applicable pre-treatment device.
Standard	• Standard samples must be analysed for the following pollutants: ○ Biochemical Oxygen Demand (BOD) ○ Chemical Oxygen Demand (COD) ○ Non-Filterable Residue (NFR) ○ Total Oil & Grease (TOG) ○ Potential of Hydrogen (pH)
Non-Standard	• For generators producing controlled substances, such as those operating in metal finishing and waste disposal industries, samples will be required to analyse specific pollutants based on their operational processes. These will vary for each site and will be specified in the Trade Waste Approval.

6.7 Monitoring of H_2S

Where levels of H_2S gas exceed the permissible exposure limits (refer **Section 4.3**) due to the operation of a trade waste generator, Council will implement a monitoring program. The level of monitoring to be undertaken and the equipment to be used will be determined for each specific site and/or occurrence. The outcomes of the monitoring program will be used to inform the required corrective actions. Council reserves the right to recover the costs of any monitoring program established.

7. DISCHARGE VOLUME MEASUREMENT

Discharge volumes are measured to calculate the charges for each connection on a property, including excess pollutant charges. Direct measurement is the primary method employed by Council to determine the discharge volumes and requires the installation of an approved flow measurement device, such as a trade waste meter, magnetic flow meter, hour run meter or tenancy water meter. Depending on the plumbing configuration, multiple devices may be required.

Council deems the property owner responsible for the devices, irrespective of any arrangements the property owner may have with the generators connected to the devices. Requirements include:

- Installing the devices in accordance with any Work Health & Safety Act 2011 requirements;
- Installing the devices in accordance with the hydraulic plans approved by Council;
- Installing the devices no more than 1.8 metres off the finished floor level;
- Situating the devices in a safe & accessible location for reading;
- Servicing and calibrating applicable devices as required by Council; and
- Replacing defective devices upon receiving notification from Council.

Additional information in relation to measuring discharge volumes, including meter reading, allowances and estimates is detailed in the *Charging Framework & Rates* which can be found on Council's website (www.logan.qld.gov.au).

8. EXCESS POLLUTANT IMPLICATIONS

8.1 Excess Pollutant Charges

General and controlled substances discharged in excess of the concentration limits specified in the standards will incur excess pollutant charges in accordance with the *Charging Framework & Rates* which can be found on Council's website (www.logan.qld.gov.au).

8.2 Excessive Pollutants

Council reserves the right, at its absolute discretion, to determine the level at which pollutants become too excessive to discharge to the wastewater system. Where this occurs, the discharge of the excessive pollutants will constitute a Trade Waste Approval non-compliance and require the implementation of corrective actions. These actions may include, but not be limited to:

- The establishment of an Effluent Improvement Program;
- Suspension or cancellation of the Trade Waste Approval; and
- Recovery of any costs associated with the non-compliance.

8.3 Effluent Improvement Program

Where trade waste discharges are determined to contain excessive pollutants, Council will require the generator to implement an Effluent Improvement Program. This program will be developed by Council in consultation with the generator and will include:

- Details of the quality issues and target outcomes;
- Investigations of the causes and options to remedy the quality issues;
- Agreed improvement actions and associated timelines; and
- Monitoring and reporting requirements.

The costs of implementing the Effluent Improvement Program will be borne by the generator. Failure to achieve the requirements within the specified timelines may result in the suspension or cancellation of the Trade Waste Approval.

8.4 Approval Suspension or Cancellation

Council reserves the right to suspend or cancel the Trade Waste Approval in the event of excessive pollutants or prohibited substances being discharged to the wastewater system. Council will comply with the requirements of the *Water Supply (Safety and Reliability) Act 2008*.

8.5 Cost Recovery

Council reserves the right to recover any costs associated with a non-compliance in accordance with the *Charging Framework & Rates*.