LABORATORY

Background

As detailed in the Icon Water publication *STD-SPE-P-003 Trade Waste Approval and Compliance Requirements*, activities that generate liquid trade waste for discharge into Icon Water's Sewerage Network must comply with specific requirements.

Any capitalised terms used and not defined in this guide note has the same meaning as in Icon Water publication *STD-SPE-P-003 Trade Waste Approval and Compliance Requirements*.

Purpose

The purpose of this guide note is to provide detail on the specific requirements for liquid trade waste generated from laboratories that have discharges that meet the requirements of a "Category A" discharge so that compliant waste can be approved for ongoing acceptance into Icon Water's Sewerage Network.

Compliance

The Trade Waste Customer remains responsible and liable for ensuring compliance with this guide note even if the occupier of the premises is another party or entity.

In the event the Trade Waste Customer or the occupier of the premises fails to comply with this guide note, Icon Water may take any and all corrective actions as specified in the Icon Water publication *STD-SPE-P-003 Trade Waste Approval and Compliance Requirements* and the Liquid Trade Waste Negotiated Contract.

Guidance

The following table details facilities and requirements for Category A discharges relevant to this guide note.

Table 1. Facility types and Category A requirements

Facility Type	Category A Requirements
Analytical laboratories Pathology laboratories Secondary school laboratories	i. the discharge volume does not exceed 5 kL/day, and ii. the required pre-treatment equipment is installed in-conjunction with good housekeeping practices, and iii. excluded substances are not discharged.

This guide note **does not** apply to:

- Agricultural or animal health research laboratories. These are pre-categorised by Icon Water as Category C discharges and specific requirements must be customised for the specific laboratory taking into account the discharge constituents and the volume to be discharged.
- Laboratories located within tertiary institutions are, subject to constituent and volume considerations and are pre-categorised as Category B discharges. Refer to Icon Water publication *TW-GN-205 Trade Waste Guide Note - Education Facilities – Tertiary Institution* for further details.
- Laboratories with activities that use nuclear medicine/radiology/radioisotopes. Refer to Icon Water publication *TW-GN-301 Liquid trade waste Category C* for further details.

- Laboratories with activities that use large volumes of chemicals that may be harmful to Icon Water's Sewerage Network or environment, for example chemical (pesticides), pharmaceuticals. Refer to Icon Water publication *TW-GN-301 Liquid trade waste Category C* for further details.

Excluded substances/equipment/processes

The following substances must not be discharged into Icon Water's Sewerage Network unless specifically approved by Icon Water:

- Concentrated solutions
- Acids
- Caustic
- Solvents
- Any other corrosive chemical

Note: The approval of such substances by Icon Water will only be forthcoming if (i) the substances are neutralised prior to discharge, and (ii) the discharge volumes are sufficiently small enough to provide a negligible risk to workers, the public, sewerage assets and treatment processes as applicable.

- Wastewater containing chemicals or substances above our acceptance criteria (or not listed) in Icon Water's publication *STD-SPE-P-003 Trade Waste Approval and Compliance Requirements.*

Pre-treatment requirements

The following table describes pre-treatment requirements for all facilities/business activities covered by this guide note, including mobile mechanical workshops that discharge liquid waste to the Icon Water Sewerage Network.

Table 2. Pre-treatment devices

Pre-treatment Device	Details
Screens	Must be fitted to all floor drains.
Dry basket arrestor	Must be installed for any floor waste outlet. The arrestor needs to be maintained regularly (e.g. removed, scraped and cleaned) to ensure the unit is operating properly.
Balancing pit[1]	It must be installed, so as to reduce the composition of the wastewater to less than the acceptance criteria (e.g. pH, chemicals). Icon Water can further advise following assessment of the trade waste application. The pit must be sized to accommodate the maximum flow from the process and have a flow retention of one hour. Note: Any infectious wastes must be sterilised by autoclaving before discharge to the Sewerage Network.
Cooling pit	If the wastewater is above 38 °C, a cooling pit must be installed, sized and vented so as to reduce the temperature of the discharge to less than 38 °C. The sizing calculations for the pit to achieve the required temperature must be provided.
pH correction	If the wastewater is outside the range of 6.5 – 10, then pH correction will need to occur before discharge to Icon Water's Sewerage Network.

[1] *A balancing pit is only required if a general-purpose pit is not installed for other waste streams. If a general-purpose pit is installed, the laboratory waste can go through this pit.*

[2]*The discharger must provide supporting information in regard to sizing of equipment and the manufacturer's recommended maintenance schedule.*

[3]*All pre-treatment devices must be maintained and cleaned as per a set schedule.*

Balancing and Cooling pits

Installation requirements

Location: Installation of the system must allow safe access for maintenance and inspection. The system must be installed to meet Australian Standards with respect to, but not limited to, working at heights and confined spaces. It must also be installed in a location that is accessible by maintenance vehicles to allow safe access to thoroughly clean its interior.

Sampling: An inspection point suitable for taking representative samples shall be provided immediately prior to the point where the liquid trade waste leaves the premises and enters the Sewerage Network and/or mixes with domestic sewage from the premises.

Balancing pit: Install an appropriately sized pit and ensure it is large enough to suit required working capacity. The inlet and outlet pipe should be 100 mm diameter. The design of the pit should be with the inlet and outlet at right angles to each other providing a swirling effect, in the flow of the wastewater. This will assist in the mixing of inflowing acidic or alkaline waste with the water held in the pit. The pit should be sized to accommodate the maximum flow from the process and have a flow retention of one hour. They must be constructed and installed to allow ease of inspection and cleaning. Lids should be easily removed and the pit wide enough so that any accumulated solids can be easily removed. The pit must be raised 75 mm above surrounding ground level or have gatic airtight covers. The internal coating of the pits should be acid resistant e.g. tar epoxy paint.

Cooling pit: Install the appropriately sized pit to ensure correct working capacity. That is, the pit will need to be larger than the stated working capacity. It must be designed to encourage cooling of the incoming wastewater by mixing with cool wastewater already in the pit. The temperature of the wastewater must be below 38 °C prior to discharge to the Sewerage Network. It must be constructed and installed to allow ease of inspection and cleaning. The lids/grates should be easily removed and the pit wide enough so that accumulated solids can be easily removed. The pit must have a high-level alarm switch fitted (audible and visible), with remote alarm signal to an area on the site that is able to be monitored.

Pump: If required, use the correct pump to manage the wastewater generated.

Vertical clearance: Ensure there is adequate vertical clearance above the pre-treatment system to allow safe inspection and cleaning.

Compliance plate: Check that there is a compliance plate with a compliance number clearly visible on the system. This ensures the equipment is authorised for the full range of conditions and wastewater on-site.

Roofing: The liquid trade waste generating process area and pre-treatment must be roofed to prevent ingress of rainwater. A ten degree, from the vertical, overhang is the minimum acceptable roof cover. to ensure rainwater does not get in**.**

Backflow prevention: A cold water tap must be installed within 5 metres of the separator. A backflow prevention device must be installed on the inlet side of the tap. The backflow device(s) must be tested every 12 months by a licensed plumber who is accredited in backflow prevention to ensure it is operating correctly and to identify if the valve requires servicing/repair. After testing a valve, the Licensed plumber must lodge a test certificate with Access Canberra, the plumbing regulator.

Note: The pre-treatment installation's pipe work and the surrounding area must be arranged to ensure that any spillage or overflow of wastewater is prevented from bypassing the pre-treatment systems and entering the Sewerage Network.

Commissioning requirements

Each pre-treatment device/system shall be commissioned by a person or company accredited for this purpose by the manufacturer or supplier of the equipment. As part of the commissioning, the following documents shall be provided:

- a certificate of commissioning to be to be forwarded to Icon Water, and

- a schedule of recommended cleaning and maintenance to be given to the owner and kept at the premises for reference and available for inspection by Icon Water on request. The schedule shall provide:
    - a description of activities to be undertaken (e.g. for coalescing plate separators the removal and cleaning of plates, sludge withdrawal from hopper, etc.)
    - minimum frequencies for these activities; and
    - any special observations to be made which would affect the frequency of this maintenance schedule or which may indicate conditions when qualified service personnel may need to be engaged.

Maintenance requirements

The pre-treatment system must be maintained as per the schedules provided during the commissioning of the system. The maintenance regime must include all aspects as indicated above in *Commissioning requirements.*

Other waste management

In addition to the installation, operation and maintenance of pre-treatment devices, the following discharge requirements are also applicable:

- Infectious waste must be sterilised before being discharged into the sewerage network (if approved for discharge by Icon Water based on a risk assessment).
- Solvents must be collected and removed by a licensed contractor and must not be disposed of via the sewerage system/network.
- Chemical solutions containing small quantities of prohibited substances (if approved for discharge by Icon Water based on a risk assessment) must be neutralised prior to discharge to the sewerage system/network.

Chemical handling and storage

Safety data sheets for any chemicals stored in bulk on-site and may be present in the wastewater, must be provided to Icon Water as an attachment with the Icon Water liquid trade waste application form.

Chemicals should be stored in an area where any spillage cannot drain to Icon Water's Sewerage Network or stormwater system. Concentrated chemicals e.g. acids, caustic and other corrosive chemicals must not be discharged to Icon Water's Sewerage Network. Chemical solutions containing small quantities of these substances should be neutralised before discharging to Icon Water's Sewerage Network. The discharge of waste from laboratory sinks must be followed by flushing with liberal quantities of water.

Housekeeping

The following general housekeeping practices must be complied with:

- Cleaning compounds must be compatible with the pre-treatment system.
- Solvents, chemicals and empty containers must be stored in a separate bunded area that cannot drain to the Icon Water Sewerage Network or the stormwater network.
- The discharge of waste from laboratory sinks must be followed by flushing with liberal quantities of water.
- Spills and leaks must be cleaned-up using dry cleaning methods.

Compliance management

Record keeping

Trade Waste Customers must:

- keep documentation relating to inspection and servicing of all pre-treatment systems at the premises for at least two (2) years and make this documentation available to Icon Water upon request.
- maintain appropriate records to demonstrate compliance with the Liquid Trade Waste Negotiated Contract at all times.

Site inspection

Icon Water's personnel may attend the premises to conduct site inspections to verify compliance with the Negotiated Customer Contract. The indicative frequency of site inspections is detailed in Section 9.12 of Icon Water's publication *STD-SPE-P-003 Trade Waste Approval and Compliance Requirements.*

References

- *STD-SPE-P-003 Trade Waste Approval and Compliance Requirements*
- *TW-GN-205 Education Facilities – Tertiary Institution*
- *TW-GN-301 Liquid trade waste Category C*

Issue	Date	Reason for Revision	By
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