

# Liquid Trade Waste

## Boiler blowdown or cooling towers

### Definition

**Liquid trade waste (LTW)** is any discharge to a sewerage system other than domestic waste from a hand wash basin, shower, bath or toilet.

**Central Coast Council** is referred to as Council.

### Introduction

This Fact Sheet is provided to assist you to treat and dispose of liquid trade waste in an efficient and approved manner.

For further information, please contact Council's Trade Waste Section on 4306 7900.

For LTW application forms, refer to [www.centralcoast.nsw.gov.au](http://www.centralcoast.nsw.gov.au).

### Boiler blowdown

#### Activities

Boiler blowdown, or bleed-off, is the water discharged from a boiler. During the boiler blowdown process, water is discharged from the boiler to avoid the negative impacts of dissolved solids (impurities) on boiler efficiency and maintenance. As water evaporates within a boiler, dissolved solids in the water remain and settle, resulting in build-up of sludge and scale. This is alleviated by discharging some boiler water through a valve at the bottom of the boiler.

The build-up of solids can also lead to foaming near the top of the boiler. Skimming or 'surface blowdown' removes the dissolved solids near the surface of the liquid. The amount of

blowdown depends on the boiler operating pressure, the amount of make-up water (water to be added), impurity levels in the make-up water, and the concentration of dissolved solids that a given boiler can tolerate. Typical blowdown volume ranges from 3% to 15% of a boiler's steam-generating capacity.

If chromate has been used as a corrosion inhibitor in a closed boiler water system, the wastewater must not be discharged to the sewerage system. It should be collected in containers and transported off site for disposal in accordance with EPA requirements.

### What pre-treatment is required?

The boiler blowdown water is often very hot and can cause damage to sewerage infrastructure, especially in large volumes. It can also increase biological activity, which in turn can rapidly reduce the oxygen content of the sewage, resulting in the generation of hydrogen sulphide and corrosion of the sewerage system.

A cooling pit/tank is required to reduce the wastewater temperature to less than 38°C. To achieve the temperature requirement, the volume of the proposed cooling pit/tank should be at least 3 times the maximum blowdown volume. If the pit/tank is smaller than this, Council requires you to provide cooling pit size calculations for the pit/tank to achieve the required temperature. Pits should be ventilated to assist with the cooling of the water within the pit.



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As boiler blowdown water contains metals, pH adjustment may be required to precipitate and remove the metals prior to discharge of liquid trade waste.

Collect all solids in containers for transport off site and disposal in accordance with EPA requirements.

Make sure the pH of the remaining liquid is corrected prior to discharge.

### **Chemical additives**

Chemicals may be added to the boiler water to inhibit corrosion or reduce scale. Some of these chemicals may contain chromium. Alternative chemical additives should be used in place of chromate additives, as these compounds are toxic and the discharge of chromium-bearing liquid trade waste is prohibited. There are some treatment systems that do not rely on chemicals and are harmless to the sewerage system and the environment. You are encouraged to consider such chemical-free water treatment systems where suitable.

### **Cooling towers**

#### **Activity**

The continuous blowdown, or 'bleed off' and other wastewater from both commercial and industrial cooling towers, constitutes liquid trade waste.

'Comfort and Process Air-conditioning Cooling Towers' are defined as cooling towers that are dedicated exclusively to (and are an integral part of) heating, ventilation, air-conditioning, or refrigeration systems associated with commercial living space air-conditioning, or commercial process air-conditioning such as computer rooms. The discharge rate from

cooling towers in this classification should not exceed 500 litres per hour.

'Industrial Cooling Towers' are cooling towers used in manufacturing for rejecting heat extracted from a manufacturing process. This activity is classified as 'Concurrence Classification C' and the application must be forwarded to NSW Department of Industry Water.

### **Issues**

Commercial and industrial cooling towers generate wastewaters that vary considerably in the contaminants they may contain, according to the water treatment utilised.

Certain cooling tower water treatments involve chemicals which can be harmful to the sewerage system or the environment into which they are discharged. Use of these harmful chemicals is either restricted or prohibited.

Some water treatment systems do not rely on chemicals and are harmless to the sewerage system and the environment. Where appropriate, these 'chemical free' water treatment systems are encouraged to be used.

