

Overview of Sydney Water Corporation's Sewage Treatment System Environment Protection Licences issued by the EPA

The Environment Protection Authority (EPA) uses environment protection licences (licences), issued under the *Protection of the Environment Operations Act 1997*, as the primary tool for regulating Sydney Water Corporation's (Sydney Water's) environmental performance in relation to its sewage treatment activities.

The EPA regulates Sydney Water's activities through a series of licences with strict, legally enforceable conditions with the objective to protect and minimise harm to the environment and public health from sewage discharges. These licence conditions include environmental performance requirements for each of the sewerage systems, including the required level of sewage treatment for each of Sydney Water's treatment plants and limits on pollutants permitted to be discharged to the environment, both from the treatment plant and the sewer network. These requirements are generally negotiated with Sydney Water, taking into account factors such as the likely impact of the activity on the environment including the surrounding environmental conditions as well as best available technology.

The EPA also regulates Sydney Water Corporation by investigating sewage-related incidents where environmental and/or public health impacts occur and ensuring that adequate and timely clean-up of such incidents is undertaken.

The EPA works with Sydney Water on strategic programs aimed at improving the environmental performance of the overall sewerage system and hence minimising its impact on the environment.

Sydney Water currently holds 23 licences for the sewage treatment systems it owns and operates across the Sydney, Blue Mountains and Illawarra areas. Each licence covers both the sewage treatment plant(s) and the associated network of sewer pipes, sewage pumping stations and sewer overflow structures.

These licences specify key requirements contained in Sydney Water licences which are listed below:

1. Specific limits on pollutant discharges from sewage treatment plants

Annual load limits (condition L2)

Each of Sydney Water's licences has limits on the annual mass load (or quantity) of specific pollutants that are permitted to be discharged into the environment. Annual load limits are intended to restrict the discharged mass of pollution to levels which either cause minimal impact to the environment or to levels that reflect approved processing capacity of the plant.

Load limits for a range of key water pollutants have been placed on Sydney Water's licences. For smaller treatment plants, this includes pollutants such as oil and grease, suspended solids and nutrients such as phosphorus and nitrogen. Larger treatment plants also include heavy metal pollutants such as cadmium, copper, lead and mercury.

Annual load limits are an important tool for protecting the long term health of the environment.

Concentration limits (condition L3)

The licences also contain limits placed on the concentration of key pollutants discharged from the treatment plants. These limits are based on the type of receiving waterway and its ambient water quality, the treatment plant's designed hydraulic or treatment capacity. The concentration limits provide a measure to determine whether the plant is operating satisfactorily over the short and long term.

Of the 23 sewerage system licences held by Sydney Water, eight are for treatment plants that discharge to the ocean, with the remaining 15 treatment plants discharging inland to the Hawkesbury-Nepean and its tributaries. The three largest ocean plants – Malabar, North Head and Bondi – discharge primary treated wastewater 2-3 kilometre offshore via deep water ocean outfalls that are located along the sea floor. Deep water ocean outfalls ensure that the large quantity of wastewater from these plants is directed to an environment capable of receiving and diluting it with minimal environmental impact.

Due to the nature of inland and near-shore ocean receiving environments, most other treatment plants are required to treat effluent to higher standards than the large ocean treatment plants and the licences reflect this through stricter pollutant limits and monitoring.

2. Requirements that the system be operated and maintained in a proper and efficient manner and condition (conditions O2, O4.7 and O4.9)

There are a number of conditions on the licences that outline the EPA's expectations regarding the management and performance of Sydney Water's sewerage systems. This includes the requirement of Sydney Water to maintain and operate its systems in a proper and efficient manner and state, that is, the operator must ensure that the system is operating effectively at all times. There are also conditions in place to ensure that the operation and maintenance of reticulation systems and plants do not deteriorate and that they continue to improve their environmental performance.

3. Required treatment processes for the range of flow volumes experienced at the plant (condition O4.1)

Each licence specifies the processes required to treat sewage prior to discharge. This ensures that the sewage undergoes the level of treatment required to produce an appropriate discharge quality at all times.

The treatment processes are based on the capacity and efficiency of the treatment plant and the nature of the sewage being received. The level of treatment also varies depending on the flow rate of wastewater coming into the plant.

During high rainfall events, most plants are unable to fully treat all inflows. Although the level of treatment may be reduced during high flows, the discharge quality is considered appropriate due to the level of dilution in high rainfall events and other external factors influencing water quality during these events.

These conditions are updated following any works that are undertaken to upgrade or amplify plants to increase treatment capacity so as to ensure that each licence requires the highest level of treatment available for the wastewater at all times.

4. Targets and limits on the number of sewage overflows that are permitted to reach waterways (conditions L7.2, L7.4 and R5.5c)

Sewage overflows from the reticulation system can occur in both dry and wet weather. In order to reduce and minimise the environmental and public health impacts of sewer overflows, the EPA has placed limits and/or targets on the number of dry and wet weather overflows that may enter the environment for each sewerage system. These limits are used to regulate Sydney Water's performance in this area, as well identify areas that require further overflow abatement works or repairs.

In addition to specific limits and targets, the licences have requirements regarding the overall sewer system performance (including wet weather overflows and chokes) to ensure the system is maintained and further deterioration does not occur. Wet weather overflow abatement works have been included as pollution reduction programs (see below) on several licences.

5. Monitoring requirements (Conditions M2, M5, M10.3, M10.7)

Monitoring conditions are an important aspect of Sydney Water's licences. These include requirements to monitor the quality of treated sewage being discharged from the plant to the environment to ensure compliance with licence limits, monitoring of the operations of the deep ocean outfalls and to monitor and detect leakage from the sewerage system.

The licences also require Sydney Water to undertake a range of monitoring programs through its Sewage Treatment System Impact Monitoring Program. This program is designed to monitor the direct impacts of its sewerage activities on ecosystem health and recreational water quality and to monitor ambient environmental conditions at sites of key Sydney Water discharges to the environment.

6. Pollution Reduction Programs

Pollution Reduction Programs (PRP) are placed on licences to address specific problems that have been identified or to bring about changes that will improve environmental performance over time. PRPs are legally enforceable.

PRPs can set milestones and deliverables and can also set timetables to achieve targets. PRPs are not designed to be long term licence conditions, rather to require a licensee to undertake a study, to perform rectification works, to develop a strategy for addressing an identified issue or to undertake capital works.

A number of the Sydney Water licences currently have PRPs regarding works or studies.

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