

Conducting site tours of water and wastewater treatment plants

Conducting a site tour of your local water or wastewater treatment plant is an effective activity for raising student awareness about the complexities and realities of the water and wastewater treatment process. It is also a good way to promote possible water-related careers for the future.

You need to ensure that the tours meet all workplace health and safety requirements. Liaise with the teacher to make sure that you are also following the school health and safety guidelines.

Check that teachers are organising sufficient additional teacher aides and parent/carers to meet the school health and safety guidelines for supervision for the year level/s of the students.

Age levels

Year 7 is the key year for water-related topics in the Australian Curriculum for both Science and Geography. However, teachers may book a tour for other year levels to highlight other aspects of water i.e. sustainable use of resources, how science is used in everyday life or local career options for students. Site tours can form the basis for case studies for senior secondary students. The minimum year level for site tours will be determined by the health and safety requirements for that site.

It is also beneficial to offer site tours for adult community groups or to organise an annual event (such as an open day) at your treatment plant for the community. The school could contribute to an event by providing a Waterwise poster display, a presentation or a drama etc.

Planning the site tour

Before the site visit, ask the teacher for relevant background information (see what you need to know).

In addition, ask for the relevant school health and safety guidelines e.g. a risk assessment form similar to the Department of Education and Training risk assessment template prior to the excursion.

Provide the teacher with some health and safety guidelines, such as:

- The site is an operational industrial work site.
- There may be dangerous chemicals onsite.
- Students must stay together at all times.
- Students must wear covered footwear.
- Access to drinking water and toilets onsite
- No smoking at any treatment plants

Preparation

Think about how you can tailor your presentation to meet the needs of the school and also to promote your key messages.

Write or adapt a site tour outline for the visit. This outline can be as brief or as detailed as you want but file a copy for future use by you or a colleague.

Send relevant background information to the teacher. See the teacher information checklist.

Getting started

Introduce yourself and explain your role.

You might take the tour or the operator onsite might take the tour, or it may be a joint tour. Students will need a safety induction, including:

- Please don't run, climb or move away from the group.
- Site has dangerous chemicals.
- There may be traffic and machinery.
- If you hear an alarm, the emergency assembly area is xxx.
- Toilets are xxx.
- Please report any hazards to a staff member.
- Please don't touch any equipment unless asked to.
- Please wash your hands at the end of the tour (wastewater treatment plants).

On the tour

Start at the beginning of the treatment process (i.e. raw water inlet for water treatment plants and raw sewage inlet for wastewater treatment plants) and tour the students around the plant, choosing areas or tanks where students might see something. (Some water treatment plants have everything in tanks so it's hard to see much water at all.) Explain the treatment process using language appropriate to the students' year level. Anecdotes and props are always interesting.

In general, students like to know (you can ask them these questions along the way before providing answers):

Water treatment

- Why do we treat the water?
- Which chemicals do you use? Why?
- What does it look like before and after? (it would be great to have a raw water sample and a treated water sample or photos of them)
- How long does the process take?
- When will this water be in my tap?
- How much water does my town use a day?
- Where does this water come from?
- How many people work here?
- How is it operated (manually or by computer)?
- What happens at night?

Wastewater

- What comes in along with wastewater?
- What is the weirdest thing you've found?
- What can I do to help stop pipes blocking?
- What happens to the rubbish that comes in?
- Will I see poo? Is that all poo?
- How long does it take for my wastewater to come here?
- How much of this is water?
- How is the wastewater treated?
- How much wastewater comes in per day?
- How is the plant operated (manually or by computer)?
- What happens to the biosolids? Can they be reused?
- What happens to the water? Is it recycled?
- Does the plant use a lot of electricity?
- How many people work here?
- What happens at night?

After the tour

To verify students' understanding, ask volunteers to retell the water treatment process in their own words. Ask if they have any questions.

Fact sheets and merchandise

If possible provide a simple fact sheet graphically outlining the treatment process used at your plant as a handout. You could use some of the background text in Whizzy's new adventures: Guidelines for use as a starting point. A version of this handout could also be published on your Council or water service provider website for community use.

Before the visit, source give-away items such as Waterwise Activity sheets and stickers available in pdf format by emailing your request to Waterwise@dnrme.qld.gov.au. Waterwise tote bags, brochures and shower timers are other potential give-away items.

Alternative arrangements for poor weather

Discuss possible alternative arrangements, if the weather is less than ideal. For instance, if the treatment plant has some undercover areas (e.g. a staffroom or office), you could conduct part of the tour indoors then go outside to see the essential parts of the plant. Cancelling the tour because of weather is generally at the discretion of the school. However, you might need to cancel a tour if it is likely to be unsafe.