

# Botany Groundwater Cleanup Project

**Fact Sheet 2**

**Updated January 2005**

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Fact sheets are designed to provide the community with simple and easy-to-understand information on environmental science and technology. Readers requiring greater detail should contact Orica:

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- by email to [info@oricabotanygroundwater.com](mailto:info@oricabotanygroundwater.com)
  - by phoning our Community Feedback Line - 1800 025 138
  - by writing to - Community Matters, 16-20 Beauchamp Road, Matraville 2036
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## Steam Stripping Unit Recommissioning

### What is the Steam Stripping Unit?

The Steam Stripping Unit (SSU) was constructed as part of the Solvents Plant Closure project of the early 1990s. It was used to remove ethylene dichloride (EDC) and other chlorinated hydrocarbons (CHCs) from the Orica Vinyls Plant effluent streams to meet trade waste standards. It was decommissioned in 2000.

The SSU has been overhauled and brought back into service and by March 2005 should be able to treat up to 2000 kL/day of groundwater contaminated with CHCs. It will operate 24 hours a day, 7 days a week. It will operate as an interim measure until the commissioning of the full-scale Groundwater Treatment Plant.

### How does the steam stripping process work?

Steam stripping is a distillation process where the heavy product is water and the light product is a mixture of volatile organics (containing ethylene dichloride [EDC] and other chlorinated hydrocarbons).

The groundwater is fed in at the top of the Steam Stripping Unit (SSU) stripping column, where it is heated as it comes into contact with steam, introduced at the bottom of the column and flowing up the column. The increased water temperature causes the volatile organic material in the water to move from the liquid phase to the vapour (steam) phase and flow from the top of the column. The vapour stream is condensed back to liquid, and the chlorinated hydrocarbons (primarily ethylene dichloride), are separated from the condensed water and recovered separately. Any uncondensed vapour is treated in an emission control system where the volatile organic material passes through an activated carbon adsorption unit to remove the last traces of organic material before the vapour stream is vented to atmosphere. The emission control system includes a steam regeneration system to recover chlorinated hydrocarbons for subsequent storage and treatment in the GTP.

Treated groundwater flows from the bottom of the SSU stripping column via a polishing activated carbon adsorption system.

### What happens to the EDC?

As an interim measure, the recovered EDC mixture will be stored on site and then at Port Botany Terminals. Subject to approval of the Environmental Impact Statement for the Groundwater Treatment Plant (GTP) and its operations, the EDC mixture will be returned to site and destroyed at the GTP.

### What happens to the water?

If suitable, the water will be transferred to BIP tenants for use in evaporative cooling towers in place of potable water supplied by Sydney Water. If the concentrations of salts and other materials make the water not suitable for use as a replacement for potable water, it will be discharged into the BIP effluent system, for disposal to sewer in accordance with the existing trade waste licence.

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## **Are there emissions to atmosphere and, if so, are they monitored?**

There are emissions from the SSU's storage tanks, feed tank, recovered organics drum and organics storage. All of these points are gathered together to discharge through an existing common vapour recovery system based upon activated carbon, in accordance with licence conditions from the Department of Environment and Conservation.

To ensure best practice<sup>1</sup>, the vapour recovery system is designed to ensure emissions of EDC and other chlorinated hydrocarbons are less than NSW draft standards. Emissions will be regularly monitored to ensure ongoing compliance.

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### **<sup>1</sup> Legislation and Best Practice**

NSW Department of Conservation (formerly NSW EPA) has confirmed that there is no published guidance specific to air emission best practice. It has published ground level concentration criteria for EDC and VCM with reference to the management of odour (Draft Policy: Assessment and Management of Odour from Stationary Sources in NSW, January 2001). Also, the Victorian EPA has published design criteria for EDC and VCM in general context (State Environment Protection Policy (Air Quality Management, December 2001). As the Victorian standards are more conservative, Orica will be applying these design criteria to the SSU for emission control.