



Botany Groundwater Cleanup Project

Fact Sheet 5

Updated: November 2004

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:

- by email to info@oricabotanygroundwater.com
- by phoning our Community Feedback Line - 1800 025 138
- by writing to - Community Matters, 16-20 Beauchamp Road, Matraville 2036

Ethylene Dichloride (EDC)

What is EDC?

1,2-Dichloroethane, also called ethylene dichloride (EDC), is a manufactured chemical that is not found naturally in the environment. It is a clear liquid and has a pleasant smell and sweet taste.

The most common use of EDC is in the production of vinyl chloride, which is used to make a variety of plastic and vinyl products including polyvinyl chloride (PVC). PVC is used to make pipes and electric cables, and was once used to produce furniture and automobile upholstery, wall coverings, house wares, and automobile parts.

How did it contaminate the Botany groundwater?

EDC was produced at the Botany Industrial Park until 1998. The EDC manufacturing facilities have since been decommissioned and demolished. During operation of the facilities, EDC leached into the soil, and while some of it evaporated into the air, the remainder travelled down through the soil and into the groundwater. Concentrations of dissolved EDC have been detected in the shallow and deep groundwater beneath the Orica land known as Southlands adjacent to the Botany Industrial Park.

How does it potentially affect the environment?

EDC is persistent in groundwater. Untreated, it could last for years.

Orica intends to contain the plumes of dissolved EDC, treat them and stop them entering Botany Bay, to the maximum extent practicable. If, however, it were to enter the bay, EDC does not bioaccumulate in fish or other sea animals.

How does it potentially affect our health?

Exposure to EDC occurs through breathing air or drinking water that contains EDC. EDC can also be absorbed through the skin.

Exposure to undiluted EDC has been known to cause mental confusion, dizziness, sleepiness, nausea, vomiting and gastrointestinal disturbances.

Nervous system disorders, liver and kidney diseases, and lung effects have been reported in humans ingesting or inhaling extremely large amounts of EDC. It is also a suspected human carcinogen.

What is the current health risk posed by the EDC in the Botany Groundwater?

A Human Health Risk Assessment has been completed which concludes that there is no unacceptable risk to human health. The risk assessment considered the exposure of residents, recreational users and on- and off-site workers to EDC and the other chlorinated hydrocarbons (CHCs) that are associated with historic operations at the Orica site. Whenever new environmental monitoring data comes to hand, the risk assessment is revisited to ensure that the conclusion of no unacceptable risk to human health is still applicable.

EDC storage at Terminals Pty Ltd – Port Botany

On 29 October, 2004 Orica began treating approximately 300 000 litres of contaminated groundwater daily at the recommissioned steam stripping unit at the Botany Industrial Park. The contaminants are being stripped from the groundwater, condensed into a liquid, and initially stored in an existing tank on site until they are transported by road



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tanker to the licensed Terminals Pty. Ltd. storage area at Port Botany until they can be safely treated. Initially about 2 tonnes of contaminants per week will be extracted, increasing to about 10 tonnes per week as the capacity of the steam stripping unit is increased.

Terminals Pty Ltd Hazardous Chemicals Storage Licence

Some years ago ICI manufactured EDC and Terminals Pty Ltd built a dedicated storage tank for the export of EDC. Terminals Pty Ltd has an existing licence to store EDC and other hazardous chemicals. Strict controls and environmental management plans are part of the site licence operational requirements.

The trucks that will transport the chemicals carry 20 tonnes and initially there will be about 1 truck movement every few weeks transporting the EDC to Terminals Pty Ltd. This will increase gradually as the volume of water being treated increases.

Orica has agreed with the Department of Environment and Conservation that treatment of the contaminants in storage will begin within a year. Once the Groundwater Treatment Plant is operational, up to two truckloads of chemicals per month will be brought back to the Botany Industrial Park for treatment. At that rate, all the contaminants should be treated within a few years.

Links to other references:

For more information on Ethylene Dichloride please refer to the National Pollutant Inventory website <http://www.npi.gov.au/database/substance-info/profiles/33.html>

or: Agency for Toxic Substances and Disease Registry (ATSDR). 2001. [Toxicological Profile for 1,2-dichloroethane](#). Update. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.