

## Full Scale Sub-Surface Reactive Iron Barrier

### Description

Following successful laboratory scale column studies and pilot scale field trials during Stage 3, Orica decided to design and install a full scale sub-surface reactive iron barrier to intercept targeted volatile chlorinated hydrocarbon (CHC) plumes downgradient of the operating site. The plumes are associated with former chlorinated solvent manufacturing on the site. The barrier will be constructed using zero valent iron (ZVI) granules.

### Objectives

- To identify a cost-effective and reliable installation technique for constructing the barrier at Orica Southlands
- To destroy in situ targeted CHC compounds primarily in the shallow aquifer before they can enter Springvale Drain

### Technology

ZVI is now an established remediation technology that can degrade most volatile CHCs in groundwater through a process of reductive dechlorination. It is provided under licence by EnviroMetal Technologies Inc. (ETI) out of the University of Waterloo, Canada.

Orica proposes that the ZVI granules will be installed in a continuous barrier running perpendicular to the inferred shallow groundwater flow path. The actual installation technique has not yet been decided upon. Expressions of Interest have been sought from a range of installation contractors from around the world. The depth of installation is affected by the technique and capability of the contractor; it will be determined in collaboration with the selected contractor.

### Resources

Project management: Orica  
Consulting – ZVI: EnviroMetal Technologies Inc. (ETI)  
Consulting – hydrogeology: URS Australia

### Measures

- Selection of preferred installation contractor
- Finalisation of design details – particularly depth of installation
- Successful placement of iron into the aquifer
- Degradation of target compounds

### Timing

Installation by end December 2003.

Preferred barrier alignment

