

# Orica Botany Groundwater Survey Community Liaison Committee Newsletter

Issue 5

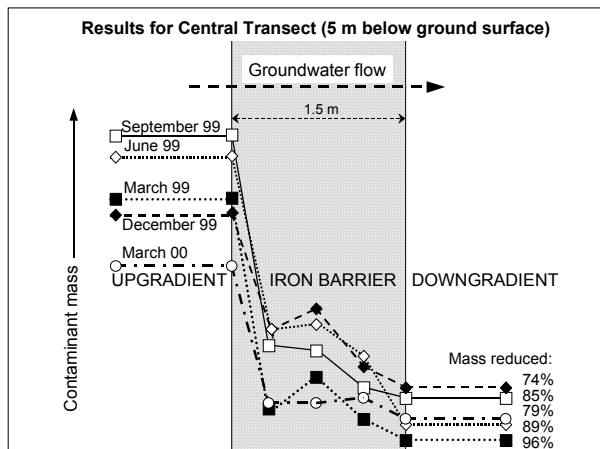
September 2000

## Summary of Meeting No. 10

Meeting No. 10 of the Community Liaison Committee was held on Wednesday 2 August 2000 at Botany Town Hall.

### Pilot Scale Reactive Iron Barrier

The reactive iron barrier's performance continues to be monitored. The latest data is from month twelve (samples were taken at the end of March.)



Overall the barrier is destroying about 80% of the mass of contaminants. Small variations in mass reduction are largely due to changes in incoming contaminant concentrations. EnviroMetal Technologies, Inc. (ETI) have reviewed the data and proposed preliminary design parameters for the full scale barrier, including location, configuration and thickness. As can be seen in the diagram above, most of the mass reduction occurs in the first 40 cm of the barrier. So ETI proposed a full scale bed thickness of 40 cm. To double check this and other design proposals, they recommended installing two additional monitoring points at 20 cm into the iron bed, another round of sampling, and collection of a core sample of iron (to assess potential mineral settling in the barrier, which affects its life span). This extra work was commissioned in late August 2000.

### Orica Stormwater Pipes' Repairs

Lining of both pipes was completed in April. There is now only a small amount of groundwater seepage into the pipes through two brick pits. As a consequence, chlorinated hydrocarbon (CHC) concentrations in surface waters in Springvale Drain and Penrhyn Estuary have dropped significantly. Remaining groundwater seepage is mainly through the banks of the Drain itself.

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## Focus on the Botany Sands Aquifer Management Plan

The Botany Basin contains the only significant groundwater source within about 25 km of Sydney. Bore water is used for industrial purposes and recreational purposes like irrigating open spaces and gardens. Natural groundwater discharge from the sand bed aquifer supports important dependent ecological systems like the Botany Wetlands.

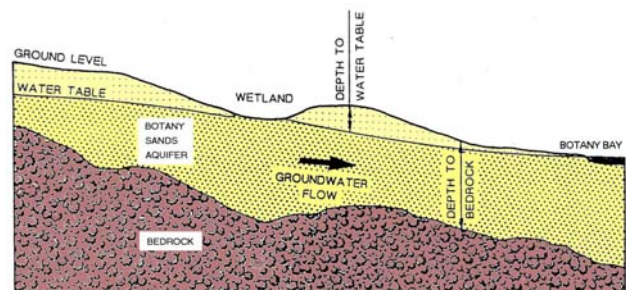
The Department of Land & Water Conservation prepares aquifer management plans for high priority groundwater systems throughout the state. The plans deal with three main issues: resource allocation; water quality protection; and dependent ecosystems. In 1998 a state-wide Aquifer Risk Assessment (under the Government's Water Reform Agenda) confirmed the need for a management plan for the Botany Aquifer because of contamination.

Preparation of the plan will be overseen by a committee of key stakeholders.

The main tasks undertaken to date include:

1. Installation of nine new monitoring bores in the northern part of the basin. These bores are of a special design that allows groundwater sampling from several depths from each bore. They are also equipped with electronic water level recorders.
2. *Botany Sand Beds - Botany Basin 2000 Status Report No. 2*, which is a major technical review on the status of the Botany Sands Aquifer including an expanded study area to the west (Brighton-le-Sands area) and to the south (Towra Point - Kurnell Peninsula).
3. *Botany Basin - Groundwater Management Map 2000*, which displays the geology, surface water features, protection zones, Department groundwater monitoring network, representative hydrographs, a north-south hydrogeological cross section in the northern zone, and local government areas.

For more information on the management plan contact Dan McKibbin (phone 9895 7875; fax 9895 7255; or email [dmckibbin@dlwc.nsw.gov.au](mailto:dmckibbin@dlwc.nsw.gov.au)).



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## **Monitoring Program**

Orica is continuing to regularly monitor for CHCs in surface water, groundwater, air and marine organisms to track improvements and watch for any changes in environmental conditions.

A summary report on groundwater results will be issued to EPA NSW after the next round of monitoring.

## **Springvale Drain Sediment Removal and Drain Reconstruction**

As part of the realignment of Springvale Drain (completed in March 2000), the old section of the Drain running through Southlands was isolated from through flow of surface waters. This was done to enable assessment and treatment of contaminated sediments in the old alignment.

A Tender Specification for removal of around 1000 m<sup>3</sup> of sediments has been issued. The sediments will be placed in a sediment containment structure pending sampling and analysis to determine treatment and disposal options.

Approval for the work will involve Botany Bay City Council (the owner of the affected land), EPA NSW and the Department of Land & Water Conservation (DLWC).

## **EDC Plume Containment**

Removal of contaminated sediments and reconstruction of Springvale Drain is an important precursor to the work to contain the shallow groundwater affected by the central plume of ethylene dichloride (EDC, a product formerly manufactured by Orica), which has extended to an area beneath Southlands.

The proposed treatment system consists of:

- extracting groundwater to a depth of about 7 m;
- pre-treating the extracted groundwater to remove solids that could foul the air stripper and to remove substances that could cause odours;
- stripping the volatile CHCs with air; and
- post-treating and returning the stripped groundwater to the aquifer in a constructed wetlands (to be built in the temporary realignment of Springvale Drain following reconstruction of the original Drain).

EPA NSW and DLWC have approved the proposal. The EPA has amended Orica's operating licence accordingly.

## **Northern EDC Plume Investigation**

Orica is continuing investigations into the northern EDC plume. Recently added monitoring installations did not detect any significant EDC. More locations are being assessed.

## **Further Remediation Research**

The microcosm studies of EDC-contaminated groundwater and soil from Orica Southlands under the direction of Dr David Major (Geosyntec Consultants) at the University of Waterloo, Canada, are now complete. As a result of some promising results, the program has been extended by four months to investigate further bioremediation options. The next step may involve trials in the field.

## **Voluntary Remediation Agreement**

The Voluntary Remediation Agreement between Orica and EPA NSW was signed on 24 February 2000. Briefing meetings with interested owners and occupiers of affected land are continuing as part of the required notification process. Orica has also issued two reports to EPA NSW required under the Agreement.

## **Groundwater Management Plan**

The DLWC is developing a Groundwater Management Plan for the Botany Aquifer. The DLWC presented details of their proposal at the meeting (see "Focus On ..." on page 1). β

## **About this Newsletter**

This is the fifth issue of this newsletter. It aims to keep the Randwick and Botany communities informed about progress of the activities associated with the Orica (formerly ICI Australia) Botany Groundwater Stage 3 Remediation Program. The newsletter is prepared by Orica on behalf of the CLC following each quarterly meeting of the CLC.

### **Who's on the Committee?**

The CLC was formed at the start of the Survey to involve the community in the process. It comprises representatives from **government** (Environment Protection Authority (EPA), Botany Bay City Council, Randwick City Council, Department of Land & Water Conservation (DLWC), South Eastern Sydney Public Health Unit, National Parks & Wildlife Service, Freightcorp and Sydney Ports Corporation), **local residential groups** (BBPPC, BEREPA and Botany Environment Watch), and **industry** (Orica, Amcor Packaging and Solvay Interox). The independent Chair for the Committee is Assoc. Prof. Ronnie Harding from UNSW Institute of Environmental Studies.

### **Who Receives this Newsletter?**

This newsletter is distributed throughout the suburbs neighbouring Orica's Botany Site including Banksmeadow, Botany, East Botany, Hillsdale, Matraville and Pagewood.

**Meeting No. 11 will be held at Botany Town Hall on 22 November 2000, starting at 1 p.m. If you wish to enquire about the CLC or its meetings, please call Orica's Community Hotline 1800 025 138.**