

Orica Botany Groundwater Project Community Liaison Committee Newsletter

Issue 12

October 2003

Summary of Meeting No. 17

Community Liaison Committee (CLC) Meeting No. 17 was held on Tuesday 8 July 2003 at Botany Town Hall. This Newsletter is a summary of the discussion in that meeting.

Notice of Clean Up Action

EPA NSW issued Orica with a Notice of Clean Up Action on 26 September 2003. It requires Orica to submit a Groundwater Clean-up Plan, which Orica is currently preparing. The Notice arose from community concerns relating to contaminated groundwater beneath residential areas to the west of the Botany Industrial Park. The Notice will be discussed in the next CLC Meeting and in the next CLC Newsletter.

Voluntary Remediation Agreement

The Stage 4 Voluntary Remediation Agreement between Orica and EPA NSW was issued on 21 May 2002, and will remain in force until December 2004. One requirement of the Agreement is for Orica to issue an Annual Report of progress. The latest was issued in February 2003.

Monitoring Program

Groundwater samples were taken from the central plume in March 2003 at locations on Orica Southlands, a bundle piezometer near the corner of Exell and Greenfield Streets and along Foreshore Road. Results indicated that the deep EDC (ethylene dichloride) plume continues to move towards Botany Bay and Penrhyn Estuary, and that its central axis is bending more to the south. There was also further evidence of the decrease in EDC concentrations behind the high concentration component of the plume as it moves on. As a result of the axial shift, Orica plans to install a new monitoring point on the Botany Golf Course.

The 'northern' plumes have been sampled less frequently, on a roughly 18 month cycle, due to the lack of significant changes in either the shallow or deep groundwater – the last monitoring event was in September 2002. Nevertheless, Orica is looking to sampling some wells on the Australand (former Johnson & Johnson) site near the northern end of the Botany Industrial Park.

Surface waters were collected from Springvale and Floodvale Drains and Penrhyn Estuary in March 2003. EDC concentrations in the surface waters were generally consistent with or lower than those detected in 2002. Several possible reasons for this were discussed.

Focus on *Remediation Strategy Review*

Orica has undertaken a review of its remediation strategy that was developed in 1996-98, and formalised under the Stage 3 and Stage 4 Voluntary Remediation Agreements. Orica has concerns that:

- ◆ the proposed shallow reactive iron barrier would achieve little immediate environmental benefit because EDC, which is not degraded by iron barriers, is now the main contaminant in Springvale Drain (unlike 5-7 years ago), and because most of the contaminants are at depth;
- ◆ dissolved metals from the reactive iron barrier could adversely affect Springvale Drain; and
- ◆ in the last 5-7 years significant improvements had been made to installation techniques for these barriers, which need to be evaluated.

Orica proposed the following changes to the strategy (and EPA NSW agreed with a 6 month deadline) to achieve the best overall environmental outcomes:

- ◆ focus resources on the central plume, deferring installation of the full-scale reactive iron barrier whilst investigating specific issues (see below);
- ◆ continue with the bioremediation field trials;
- ◆ assuming the trials are successful, scale up bioremediation
 - on Block 2 Southlands - quick and relatively simple to scale up the trials
 - downgradient of Southlands on Botany Golf Course
 - at the Botany Industrial Park boundary (which will make a more significant improvement in Springvale Drain water quality than the reactive iron barrier); and
- ◆ with respect to the southern plumes,
 - investigate the potential impacts of dissolved metals from the reactive iron barrier on the aquifer and surface waters
 - if necessary, identify downgradient solutions for the dissolved metals
 - assess the costs and benefits of shallow and deep reactive iron barriers
 - assess alternative alignments for the full-scale reactive iron barrier
 - assess the alternative hydrofracturing emplacement technology
 - conduct laboratory trials with evolving technology that combines zero valent iron and bioremediation (potentially giving a thinner barrier able to degrade all CHCs including EDC)
 - investigate the potential for bioremediation solutions for Block 1 of Orica Southlands.

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Soil vapour emissions were measured in November 2002, in accordance with the 15-18 month sampling pattern used to assess seasonal effects. Soil vapour flux rates were similar to previous rounds, except at the monitoring point on SRA land where emissions of trichloroethylene (TCE) and tetrachloroethylene (PCE) were significantly higher than previously measured. It is thought this was due to the prolonged hot and dry weather leading up to the sampling event. As a precaution, the new data was used to update the Human Health Risk Assessment, which concluded that the air emissions continue to not cause an unacceptable risk to human health for all key receptors.

Remediation Strategy Review

Orica's current remediation strategy under the VRA was developed in 1996-98. The main elements are:

- Installation of a permeable reactive iron barrier on Block 1 of Orica Southlands to intercept the shallow southern plumes (where there is little EDC, which is not destroyed by the iron) and reduce the chlorinated hydrocarbon concentrations in Springvale Drain;
- enhanced bioremediation of the shallow and deep portions of the central plume (where EDC is the predominant contaminant); and
- ongoing monitoring of all plumes, coupled with updates to the Stage 2 Human Health Risk Assessment as required.

Groundwater conditions have changed markedly in the last 5-7 years. Consequently, Orica undertook a review of the remediation strategy and put its proposed changes to EPA NSW in June 2003. The changes are described in the *Focus on* section on the front page.

Reactive Iron Barrier

As a result of the remediation strategy review, installation of a full-scale reactive iron barrier (FSRIB) will be placed on hold pending further investigations (see *Focus on*).

The Springvale Drain surface water samples collected in March 2003 were also analysed for dissolved metals that could have an aesthetic impact on the Drain. The results showed that increased concentrations of dissolved iron in the Drain downstream from the inferred seep points from the pilot scale reactive iron barrier.

Proposed Port Botany Expansion

Orica has allowed Sydney Ports Corporation (SPC) to use information from the Annual Reports required under the VRA as a basis for discussion of groundwater issues in the Environmental Impact Statement (EIS) for the Port Botany Expansion.

Orica is interested in SPC's plans for Penrhyn Estuary, which are understood to include an ecological wetland zone that would limit public access to the Estuary (which would improve human health risks by reducing exposure pathways to the chemicals of concern). Earlier arrival of the central plume at the Estuary could be anticipated (if it were not treated or intercepted) due to the development, however modelling showed that EDC concentrations at the mouth of the Estuary would not be changed.

Springvale Drain Sediment Removal and Drain Reconstruction

Orica has restored the original alignment of Springvale Drain running through Orica Southlands. The excavated contaminated sediments are being stored in sediment containment structures pending classification for disposal. EPA NSW has approved Orica's application for waste classification, with the bulk of the sediments to be removed as "Industrial" waste. Two small 'hot spots' of "Hazardous" waste have been delineated for separate drumming off, pending later treatment.

Bioremediation Field Trials

In late August 2002 Orica submitted a Combined Development & Construction Certificate Application (DA) to the City of Botany Bay for installing and operating field-scale bioremediation research trials. The DA was revised in early October to reflect a relocation of one of the trial areas. Council approved it on 24 March 2003.

Orica is working to finalise the well locations and to resolve matters relating to technology licensing and intellectual property. Construction is due to be completed in late 2003, with the trials to run from January to September 2004.

Orica plans to scale up the use of bioremediation (see *Focus on*) if the trials are successful. At the same time Orica will also design a pump and treat system as a contingency in case the trials prove to be unsuccessful. β

About this Newsletter

This newsletter aims to keep the Randwick and Botany communities informed about progress of the Orica Botany Groundwater Project. The newsletter is prepared by Orica on behalf of the CLC following each meeting of the CLC. Meetings are held approximately every 3 months.

Who Receives this Newsletter?

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

Meeting No. 18 is planned for Thursday 23 October 2003, at 1 p.m. in Botany Town Hall. If you wish to inquire about the CLC or its meetings, please call Orica's Community Hotline on 1800 025 138.

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