

Orica Botany Groundwater Survey Community Liaison Committee Newsletter

Issue 8

November 2001

Summary of Meeting No. 13

Community Liaison Committee (CLC) Meeting No. 13 was held on Tuesday 18 September 2001 at Botany Town Hall.

New Community Participants

Thanks to the efforts of Mrs Nancy Hillier (local resident and representative from Botany Environment Watch), several additional community members attended the meeting. The CLC welcomed the new attendees, and is looking forward to more fresh faces.

New Orica Managing Director

Following the resignation of Philip Weickhardt on 5 July 2001, a new Managing Director and Chief Executive Officer was appointed. Malcolm Broomhead, formerly of North Ltd, joined Orica on 3 September 2001.

Reactive Iron Barrier

As a result of the successful trials of the pilot scale reactive iron barrier, Orica is designing a full scale barrier to destroy a range of chlorinated hydrocarbons (CHCs) found in the groundwater downgradient of the manufacturing site. The preferred location has been selected. Enquiries have now been sent to 18 contractors in Australia, North America and Europe seeking Expressions of Interest for installing the full scale barrier. Installation will be complex because:

- It has not been done previously in Australia;
- The sandy soil is very unstable for trenching; and
- The proposed barrier is large (about 270 m long).

One design parameter that has not yet been decided is the depth of installation. This depends on the installation method selected. The depth will be finalised in collaboration with the selected installation contractor.

Orica will begin purchasing the iron for the barrier next year, but it will take some time for sufficient quantities to be produced locally. The timing of the construction work depends on the iron availability and the selection of the installation contractor. It is currently planned for 2003.

Monitoring Program

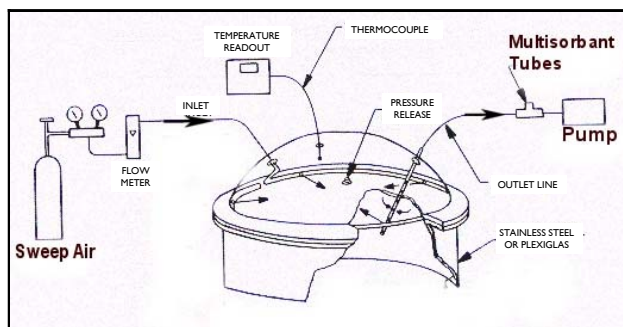
In the most recent round of environmental monitoring (conducted in July 2001), air emissions from the ground surface were measured and sampled in conjunction with the customary surface water and groundwater tests. (See the *Focus on ...* box on page 1 to learn how the monitoring
Continued on next page

Focus on *Soil-to-Air Emission Monitoring*

The emission of volatile chemicals to air from the contaminated groundwater beneath and downgradient of the Orica manufacturing site was measured and analysed during Stage 2 of the Orica Botany Groundwater Survey (1993-1996). The Human Health Risk Assessment found it was one of the most important pathways for potential exposure for many of the receptor groups in the Botany area.

Orica has an established air emissions monitoring program to measure directly the emission rate of volatile chemicals from the surface of the ground. This information is used to assess whether there is any change in the assessment of potential risk to human health.

Air emission samples are collected in areas over the known groundwater plumes. The emission rate is measured using an emissions flux hood, which was supplied and operated by the University of NSW Centre for Wastewater Control, using a US EPA methodology.



The use of an emissions flux hood provides a measurement from a defined surface area. The methodology involves introducing clean, dry sweep air into the hood at a fixed and controlled rate. This sweep air mixes with emissions from the surface of the enclosed ground and is sampled through a multisorbant tube at a controlled rate.

The analysis of the multisorbant tube provides a measure of the total mass of each target chemical collected during the sampling time. The mass is used to calculate the concentration of each chemical and its emission rate. Results can be affected by the nature of the chemicals at the top of the plume, soil properties and the weather.

With thanks to URS Australia

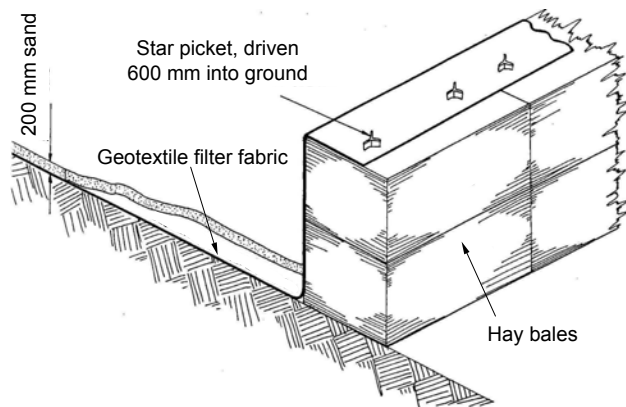
is done.) The air emission results showed little change from the previous monitoring in 1999, except that the rates of emission were lower than previously measured.

Monitoring is used to review the risk profile. Following this round there has been no change to the conclusion of the 1996 Health Risk Assessment that the air emissions do not represent an unacceptable risk to human health for all key receptors.

Springvale Drain Sediment Removal and Drain Reconstruction

Botany Bay City Council has issued a Planning Permit for the proposed re-establishment of the original alignment of Springvale Drain running through Orica Southlands. Orica is awaiting further approval from the Department of Land and Water Conservation (DLWC).

As part of the work about 1000 m³ of contaminated sediments will be excavated from the currently bypassed section of the Drain. The sediments will be placed into sediment containment structures pending testing to determine treatment and disposal options.



Section view of typical sediment containment structure

Shallow EDC Plume Containment

Groundwater monitoring has revealed a plume of EDC (ethylene dichloride, a CHC formerly produced on the manufacturing site) in a section of the groundwater underflowing the site. Orica has designed a shallow groundwater containment system to prevent seepage of EDC into Springvale Drain (reported previously). It can be installed if the risk assessments show an unacceptable risk. The Environment Protection Authority NSW (EPA NSW) has altered Orica's operating licence conditions to accommodate the proposed plant. Orica is now awaiting planning approval from Council.

Bioremediation Program

Orica is designing field scale bioremediation research trials, building on the successful completion of laboratory scale trials by GeoSyntec Consultants in Canada. Two locations have been identified on Orica Southlands to assess the effect of injecting nutrients into the shallow and deep groundwater to promote biological destruction of the EDC in the groundwater. The trials are expected to last 12 to 18 months, commencing in 2002. Orica will fully inform DLWC, EPA NSW and Council when the proposal is developed.

Voluntary Remediation Agreement

The current Voluntary Remediation Agreement between Orica and EPA NSW for Stage 3 will expire at the end of December 2001. A Stage 4 Agreement describing the investigation, research and remediation modules and goals for the Orica Botany Groundwater Survey must be signed by then. The draft "Principal Features" were reviewed with EPA NSW in June 2001.

CRC for Nano-Sized Iron Particles

Orica is participating in a Cooperative Research Centre (CRC) project developing a commercially viable process for forming polymer coated iron particles. The particles are 100-200 nanometers (0.0001-0.0002 mm) in diameter. The small size makes them more reactive and easier to install as reactive iron barriers. The polymer coating, which will be biodegradable in the groundwater, will prevent the iron from rusting during storage and installation.

The project team includes the University of NSW, CSIRO, EPA NSW, Sydney Water Corporation, Orica and Cleanaway. β

About this Newsletter

This newsletter aims to keep the Randwick and Botany communities informed about progress of 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 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. 14 is scheduled for Tuesday, 5 March 2002, starting at 1 p.m. in Botany Town Hall. If you wish to enquire about the CLC or its meetings, please call Orica's Community Hotline on 1800 025 138.