

**Community Liaison Committee
Botany Groundwater Cleanup Project**

Briefing Paper for 1 April 2008 Meeting

1. INTRODUCTION

This briefing paper is prepared for the Community Liaison Committee (CLC), a community forum established for Orica's Botany Groundwater Cleanup (BGC) Project. It aims to update the CLC on the progress of the BGC Project, Orica actions identified at previous CLC meetings and other matters of interest to the CLC. It covers updates from October 2007 until mid March 2008. The briefing paper format has been amended this month in an attempt to respond to comments made at the December 2007 CLC meeting.

2. PROGRESS OF BGC PROJECT

Each quarter, Orica provides a BGC Plan Progress Report to the Department of Environment and Climate Change (DECC) with the most recent report, No.17 submitted on 29 February 2008. The reporting period for Progress Report No.17 is from 1 October 2007 to 31 December 2007, however, more recent information is included. The report is distributed to stakeholders and regulators as requested. Section 2 of the CLC briefing paper attempts to summarise key points from the quarterly report.

2.1. Notice of Clean Up Action (NCUA)

Orica has achieved compliance with all ten conditions of the NCUA that had specific completion deadlines, and has also achieved ongoing compliance with 15 more conditions of the NCUA that typically relate to recurring or routine timeframes (e.g., progress reports). Of note, the *DNAPL and Groundwater Remediation Technology Annual Review* was submitted with Progress Report No. 17. Two further conditions are works in progress:

- Condition 5: Remedial measures to ensure groundwater and surface water flows into Botany Bay and Penrhyn Estuary achieve ANZECC Guidelines for slightly to moderately disturbed ecosystems. Progress against this condition is discussed in Sections 2.2 and 2.6 below.
- Condition 6: Emissions from the works and measures required by the NCUA must be strictly controlled through adoption of best practice. Works and operations to be carried out in a controlled and competent manner. Progress against this condition is discussed in Sections 2.4 and 2.5 below.

2.2. Hydraulic Containment

During the reporting period for Progress Report No. 17 of October to December 2007 operations of our three containment lines stabilised the contaminant plume distribution. This stabilisation is indicated by the unchanged contaminant plume distribution contour diagrams included in the *Groundwater and Surface Water Monitoring Report* appended to November progress reports. (Note: this stability is also illustrated in the September 2005 and 2007 plume maps in Section 5.1 of this briefing paper.)

Orica has noted the CLC's concern regarding use of the term "generally" when referring to the levels of hydraulic containment achieved in progress reports. If the term "generally" was not used, it could be implied that full continuous containment was being achieved in all required locations. In reality, though, at any moment in time there are likely to be instances where 100% containment is not being effected (e.g., due to maintenance work or inconsistent pump operation). However, Orica is usually able to ramp up the pumping rates in these locations to draw back groundwater that might have passed the containment line.

The progress report is a succinct interpretative summary of a large amount of data. It is designed as an 'exception' report. In other words, changes from the status quo (or previous reporting period) and non-compliance with BGC Project objectives are typically discussed in some detail, whereas matters of ongoing conformance tend to receive little discussion.

The key containment issue for this quarter is that containment rates were affected during the annual Groundwater Treatment Plant (GTP) maintenance shutdown of late November 2007. Following the shutdown, pumping rates were set to maximise the recovery of groundwater

that might have passed the Secondary Containment Area (SCA) during the shutdown. Hydraulic head, or water surface elevation, target levels were then met. Further details on the hydraulic containment are attached (see Executive Summary of Progress Report No. 17).

2.3. Chemical Monitoring

Similar to hydraulic containment, the term “generally” is used when describing chemical monitoring progress.

- The inferred distribution of volatile CHCs in the shallow groundwater within the Southern Plumes during the December 2007 presented a generally stable or decreasing trend against historical data and is generally consistent with that reported in previous monitoring rounds.
- Although there was variability, with increases and decreases in concentrations depending on location and depth, concentrations of volatile CHCs within the Central Plumes are mostly stable or decreasing and are consistent to that reported in previous rounds.
- The inferred distribution of volatile CHCs recorded within the Northern Plumes in shallow groundwater during December 2007, and particularly ethylene dichloride (EDC) and carbon tetrachloride (CTC), which represent the majority of the contaminant mass, is consistent with historical data and in some instances showing signs of decreasing.
- In general, volatile CHC concentrations measured in pore¹ water within Penrhyn Estuary are similar to or lower than historical concentrations.
- The proportion of EDC relative to total volatile CHCs was lower than historically observed in samples collected from Springvale Drain and Penrhyn Estuary.

2.4. Groundwater Treatment Plant Operation Update

The following table summarises the key operating issues at the GTP that Orica has worked on during this reporting period. These issues have been previously reported to the CLC and the table provides an update on their status.

| Key issues worked on during this reporting period | Progress | Comment |
|--|---|--|
| Biological fouling in air stripping unit | <ul style="list-style-type: none"> • Plans to trial two new biocides are underway; • Investigations into the use of chlorine dioxide as a sterilising agent have commenced; • A clean-in-place system is being developed to improve the environment during the cleaning process; and • A new biocide, with a proven record in overseas plants, has been identified. | All these actions will be undertaken in a staged approach to determine which one or combination is most successful. |
| Improving iron/aluminium removal at Stripped Water Treatment Plant | <ul style="list-style-type: none"> • Sodium hypochlorite dosage trials to provide a more robust oxidising environment and encourage precipitation of iron | <ul style="list-style-type: none"> • Mixed results obtained. Trials are continuing. Preliminary results indicate no significant improvement in iron removal, but is beneficial as a biocide for multimedia pressure filters and sludge thickener. |

¹ Pore is a space in a soil material not filled by solid particles, but with air or water.

| Key issues worked on during this reporting period | Progress | Comment |
|---|---|--|
| Biological fouling in pressure filters and reverse osmosis (RO) units | <ul style="list-style-type: none"> • Conversion of one Granular Activated Carbon (GAC) filter to Biological Aerated Filter (BAF) to remove readily biodegradable organic matter from water • Conversion of remaining four GAC units to BAFs by March 2008. | <ul style="list-style-type: none"> • Trials were successful although inadequate data has been obtained to validate organic removal • Trials led to reduced operation of the Stripped Water Treatment Plant, resulting in limited groundwater treatment rates in mid February 2008 (refer to Figure 2). • Mechanical and electrical modifications completed by 14 March 2008. Commissioning is ongoing and results of initial testing will be available by early April 2008. |
| Ammonia Pollution Reduction Program (ammonia is resulting from chemically eliminating chloramine in discharged treated water, by using sodium metabisulphite) | <ul style="list-style-type: none"> • As requested by the DECC, in order to calculate dilution of the discharge water, Orica held discussions with Amcor regarding its extraction rates from the Snape Park Borefield. Water pumped from Snape Park travels via Bunnerong Canal to Long Dam, where it mixes with water discharged from the GTP treated water pipe. • Trials commenced using catalysed activated carbon to destroy chlorine and reduce the production of ammonia. | <ul style="list-style-type: none"> • Due to the recent rainfall events (Amcor does not extract groundwater during and following rainfall events) and faulty flow meters, dilution calculations were not finalised. • Encouraging results obtained. Trials involving other carbon types commenced in early March. • Progress summary on the program was submitted to the DECC on 29 February 2008. |

| Key issues worked on during this reporting period | Progress | Comment |
|---|--|--|
| Biological fouling of shallow wells on Foreshore Road | <ul style="list-style-type: none"> • Orica is working on sourcing a high-grade stainless steel positive displacement pump fitted with a high-grade stainless steel motor • Orica is examining the use of well sleeves that would be installed inside extraction wells to prevent ingress of oxygenated water from the shallow aquifer in order to limit bacterial growth in the wells and header pipes | <ul style="list-style-type: none"> • Difficulties in finding compatible pumps and housings. No supplier produces both items, and none can guarantee performance when a combined unit is manufactured. Orica is liaising with a number of companies to resolve this issue. • Installation of the trial sleeves is expected to occur by late May 2008. |

Since commencing the BGC Project on 28 October 2004, Orica has treated 3.3 GL of contaminated groundwater and has recovered (from the interim operation of the Steam Stripping Unit [SSU]) and/or destroyed (at the thermal oxidiser of the GTP) 538 tonnes of CHCs (Figure 1).

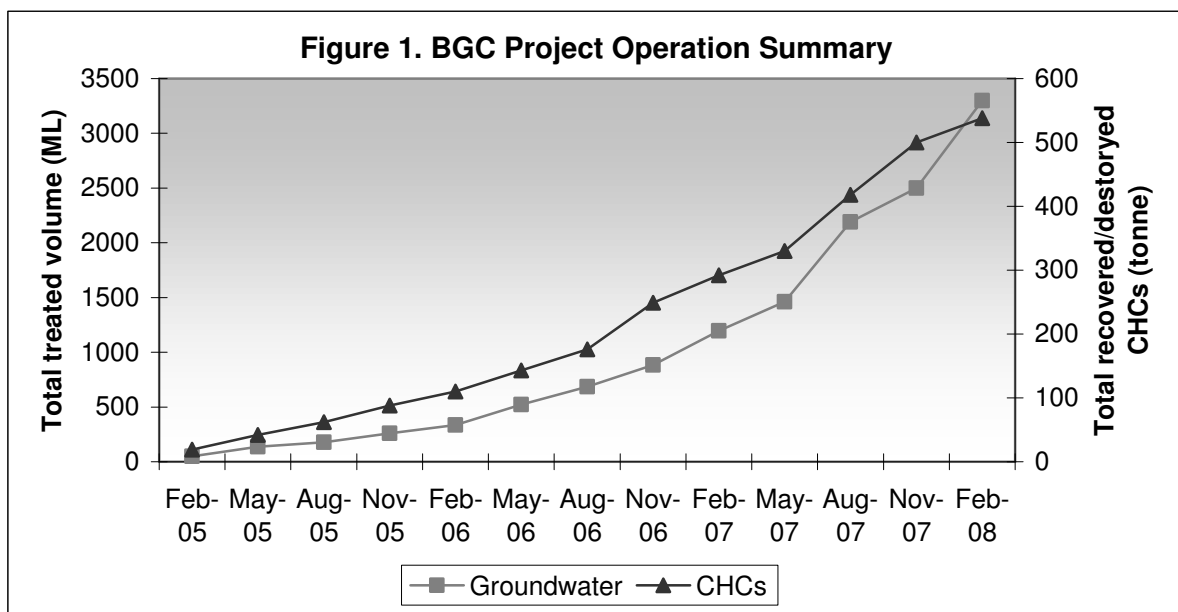
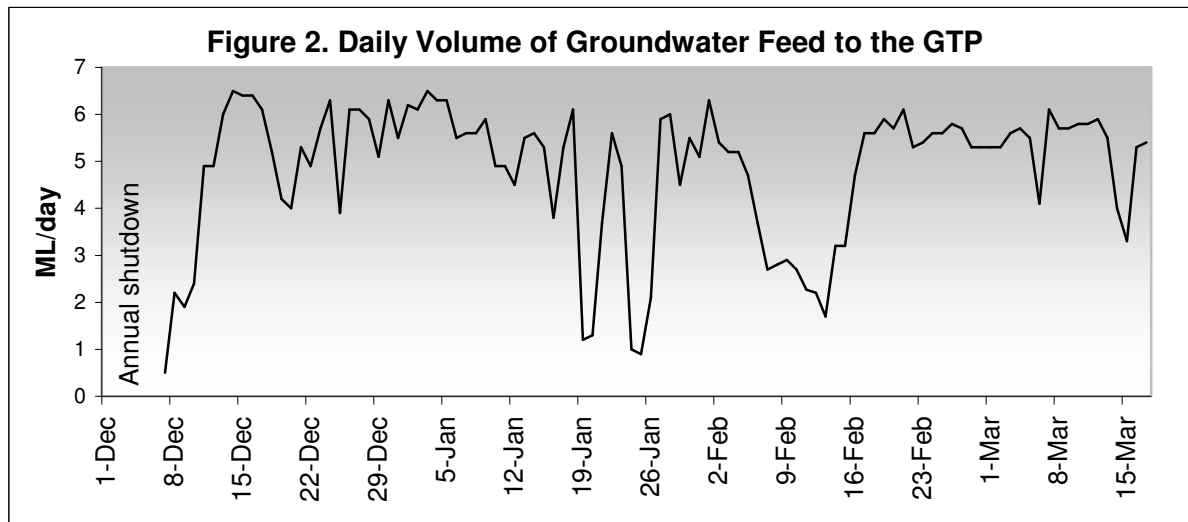


Figure 2 shows the daily volume of groundwater fed to the GTP for treatment during this reporting period. The blank record in early December 2007 corresponds with the annual shutdown of the plant. Reduced input of groundwater occurred twice in mid January 2008 due to plant trips associated with low feed tank pressure attributed to faulty pressure reducing valves. Groundwater input also decreased and remained low for about two weeks in early February 2008 during the single BAF trial. Another plant trip occurred during this period, this time due to faulty air compressors that supply instrument air². During this period adequate containment was achieved, though treated water production was lower.

² Instrument air refers to air used to operate critical items at the GTP

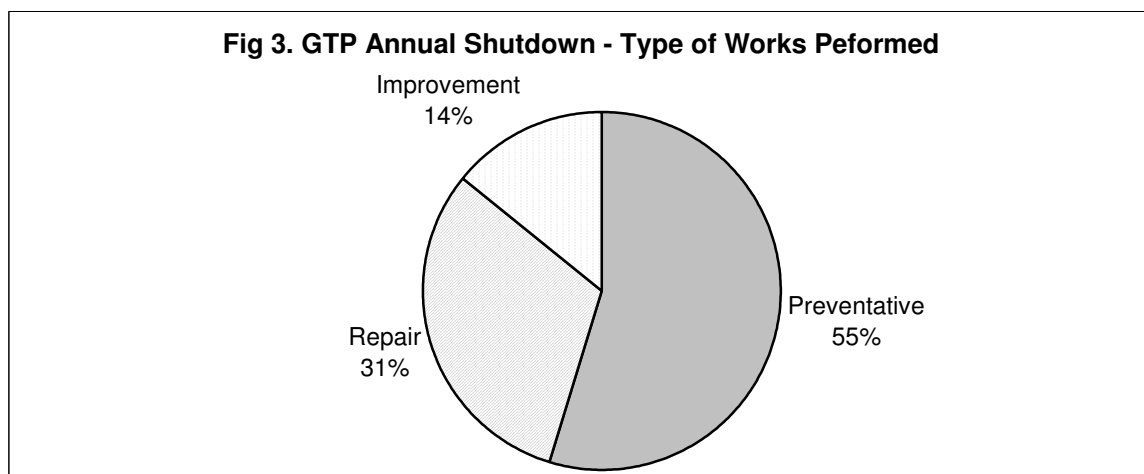


2.5. Groundwater Treatment Plant Annual Shutdown

As previously reported, the GTP annual shutdown occurred between 15 November 2007 and 7 December 2007. Over 350 jobs were executed without any environmental or safety incidents. A list of all works that were carried out during the annual shutdown has been distributed to the CLC as requested.

The following pie chart (Figure 3) is a breakdown of the types of works carried out during the shutdown, divided into three categories:

- **Repair:** A piece of equipment which is showing signs of poor performance needs maintenance. Sometimes this can only be done when the plant is offline. An example of type of work is task 144 *thermal oxidiser refractory repair*. Limited inspection while the thermal oxidiser was operating indicated that some of the refractory (internal brickwork) was likely to be in need of repair. Detailed inspection and repair works could only be done while the plant was shutdown.
- **Preventative:** Work that is done to ensure that equipment does not stop working due to normal wear and tear of components. For example, task 37 *Caustic Pump Valve & Diaphragm inspection and oil change*. The internal components of this important pump may work correctly for a few years. To ensure that the pump doesn't breakdown while the plant is operating, it is opened and checked to see if it is showing wear and needs replacement.
- **Improvements:** As understanding of better ways to operate the plant develops with time and experience, equipment needs to be changed to take advantage of this new knowledge. Sometimes these changes can only occur when the plant is offline. For example, task 338 *"Insert probe into stripped water pump discharge line with dot on probe facing towards flow"* was undertaken to allow future chemical addition aimed at improving iron and aluminium removal by the Actiflo® units located at the Stripped Water Treatment Plant of the GTP.



2.6. Springvale Drain Air Monitoring and Construction of Spear Point Extraction System

Results of recent monitoring around Springvale Drain suggest that pumping at the Primary Containment Area (PCA) and Botany Industrial Park (BIP) containment lines is not maintaining reduced shallow groundwater discharge into Springvale Drain immediately after rainfall events. Orica is proposing to construct a spear point extraction system along certain sections of Springvale Drain in order to maintain human health risks at acceptable levels, regardless of rainfall events. A Review of Environmental Factors (REF) for the construction of the spear point extraction system will be submitted to the DECC at the end of March 2008. Orica will report the details of the conclusions of the REF at the June 2008 CLC meeting.

A summary of the results of vapour monitoring, risk assessment and the proposed construction of a spear point extraction system will be provided to primary stakeholders (landowners of business premises around Springvale Drain) shortly.

2.7. Temporary Aquifer Storage and Recovery (TASR)

As previously reported, Orica is proposing to replace the SSU with Temporary Aquifer Storage and Recovery (TASR), as a backup for the GTP in the event of a significant plant shutdown. The draft REF for TASR was submitted to the DECC in March 2008. Hydrogeological modelling is being conducted by JBS Environmental and A.D. Laase Hydrologic Consulting, Inc. (based in Colorado, USA). Orica will provide an update on the conclusions of the REF and TASR proposal at the April 2008 CLC meeting.

3. WATER RECYCLING PROGRAM

Solvay Interlox re-commenced using GTP treated water since February 2008. Orica is yet to resolve the issue of chloramines and total organic content in treated water, which has prevented supply of treated water to existing customers' demineralised water plants. The successful operation of the BAF units will assist with this issue.

No recycled water was supplied to customers for about 11 days during the first two weeks of the BAF unit trials in early February 2008, due to the GTP's reduced treatment capacity. As detailed in the insert to the March 2008 CLC Newsletter, the Water Recycling Program is still under development. Orica is currently focusing on implementing Stage One (provision of treated groundwater to BIP and Solvay Interlox of up to 8 ML/day) and Stage Two (treatment of process effluent). Stage Three (sewer mining) has been deferred and is not being actively pursued at present.

Orica is looking into other water source options for Stage Two. We are currently looking into the possibility of sourcing water from stormwater harvesting and BIP process effluent. Specific strategies for Stage Two will be further developed once the State government's administrative and pricing arrangements for the establishment of a recycled water grid, which will pipe and distribute Orica recycled water to customers beyond BIP, are finalised.

4. FORMER CHLORALKALI PLANT MERCURY INVESTIGATIONS

As previously reported, mercury was detected in groundwater and soil at the site of the now demolished former ChlorAlkali Plant at the BIP. Orica has been conducting soil investigations on the BIP site, and groundwater investigations both on and off the site. These investigations have detected mercury in groundwater at off-site monitoring wells. All off-site wells included in these investigations are situated on industrial properties and Orica has confirmed with property occupiers that groundwater is not used at these sites.

Since the last CLC meeting, further groundwater sampling was conducted both on- and off-site. As reported at the December CLC meeting, the availability of laboratories to perform the necessary soil analyses has delayed the completion of the Human Health and Environmental Risk Assessment (HHERA). The HHERA is now expected to be completed by the end of May 2008 and Orica hopes to present the results at the June 2008 CLC meeting.

As also noted in the December 2007 meeting, Orica is proposing to conduct soil washing trials to assess whether this remediation technology can be used to remediate mercury (elemental) contaminated soil at the BIP site. In order to undertake the trials, additional characterisation of the soil was required, and sampling was completed in early March 2008.

The trials, which are scheduled to commence in May 2008, are expected to take three to four months. No planning approvals are required for the soil washing trials, however Orica will notify the City of Botany Bay Council and the DECC. Further details about the soil washing trials will be provided at the April 2008 CLC meeting.

If the soil washing trials are successful, and if remediation is required (based on conclusions of the HHERA), Orica will prepare a Remediation Action Plan. Planning approvals may be required before remediation can commence. In the meantime, Orica will update its Site Management Plan to ensure the former ChlorAlkali Plant area is appropriately managed until remediation occurs.

Orica provided an update on the investigation works and soil washing trials to BIP employees in mid February 2008.

5. OUTSTANDING ORICA ACTIONS FOR THE CLC

5.1. CHCs Plume Contour Diagrams

At the December 2007 CLC meeting, Orica was requested to prepare pre-hydraulic containment and present plume contour diagrams of contaminants (Action Dec 07 #7). Orica has initially prepared two maps of the EDC plume (pre-containment and current position) and is seeking your feedback.

In preparing these maps, a number of issues had to be considered:

- Contour maps only indicate the spatial distribution of contaminant plumes, showing the highest concentration across all depths at any single location.
- Increased monitoring data has enabled more accurate reporting of the plume distribution compared to pre-containment times (an example is illustrated by the large grey arrows in Figure 4 below).
- How to clearly depict contaminant plume contour lines of 'before and after' for each contaminant in one diagram, particularly as changes are typically negligible.
- Not much change can be depicted in 'before and after' maps since movement of the contaminated plumes has been stabilised and contained by the operation of the hydraulic containment lines (i.e., hydraulic containment will not rapidly 'collapse' the plumes, but some subtle changes – indicated by the black arrows – could be inferred).
- The mass of contaminants diffused into the aquifer will sustain the dissolved phase plumes for a long time.

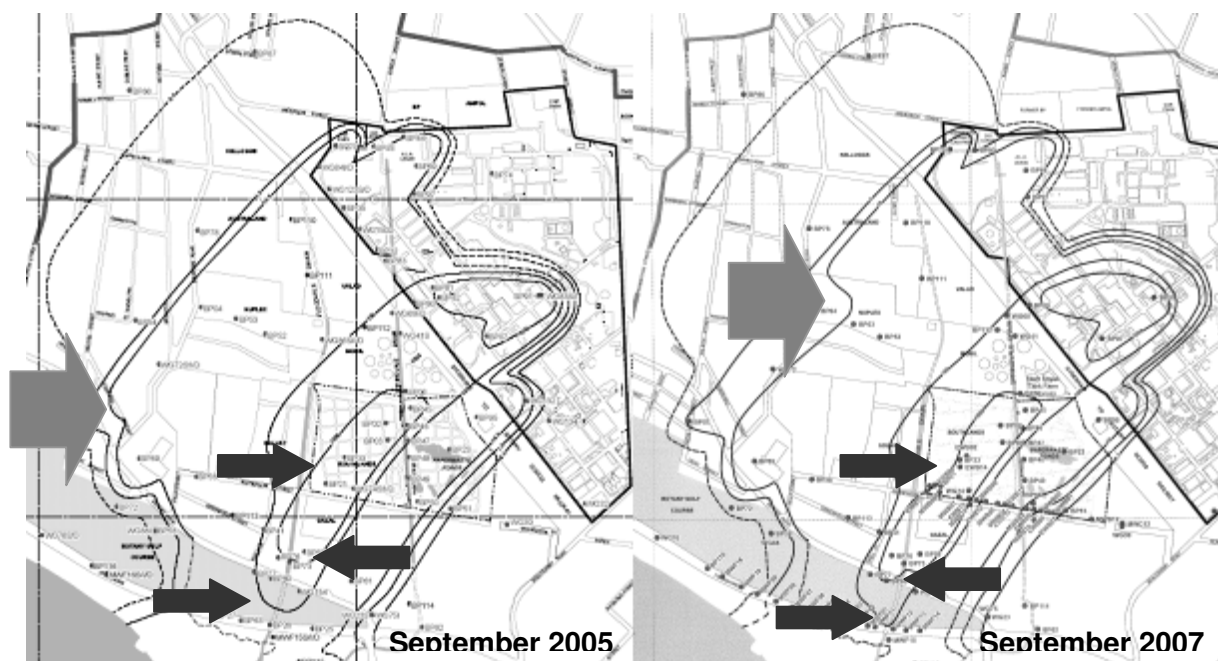


Figure 4. Inferred distribution of EDC in the deep aquifer, September 2005 and 2007

5.2. Orica's Response to IMC Task 16

Independent Monitoring Committee (IMC) Task 16 was undertaken on 15 June 2007 and comprised of a discussion between Prof Ian Acworth, Orica, DECC and URS following Prof Acworth's recommendation to conduct additional groundwater monitoring south of the SCA (i.e., between Foreshore Road and the foreshore). At this meeting Orica agreed to consider options for an investigation program to obtain further groundwater data in the Penrhyn Estuary, once the benefit of such investigations was established (see IMC Task 16 meeting report for more details).

In consideration of this matter, Orica has:

- Reviewed groundwater modelling information (e.g., Orica/URS response to IMC Task 4 regarding groundwater modelling assumption review);
- Reviewed existing monitoring data gathered in Penrhyn Estuary and subsequent analyses and assessments undertaken;
- Assessed the potential use of additional monitoring data; and
- Reviewed likely costs of the additional monitoring suggested by Prof Acworth.

In light of these factors, Orica believes that the suggested additional investigation will not provide further benefit to the BGC Project. Orica will provide more details and discussion at the April 2008 CLC meeting.

6. RONNIE HARDING PERPETUAL PRIZE

As many CLC members may recall, in appreciation of the former CLC Chair's longstanding voluntary contribution to the CLC and the Botany community as a whole, Orica established a scholarship for students of the Institute of Environmental Studies of the University New South Wales (UNSW) in 2005. The Ronnie Harding Perpetual Prize is awarded annually to two recipients, a local and a distance student, on the recommendation of Professor Garry Smith, the Director of the Institute. \$1000 is awarded to students, with the best academic record in all courses in the previous 12 months, who are graduating from the Masters of Environmental Management and have not been recipients of any prizes from the Institute of Environmental Studies.

In 2007 the prizes was awarded to Michael Parks (distance recipient) and Katherine Norris (on campus recipient) on 27 March 2007. The 2008 prize recipients will be announced at the end of March 2008 and we will advise the CLC at the April 2008 meeting.

7. COMMUNITY COMMUNICATION UPDATE

7.1. Community Workshops

No groundwater-specific community workshops have been held in the reporting period. Orica still plans to hold another workshop on water recycling once the various recycling initiatives have been further developed. As an interim, Orica prepared an insert for the CLC March Newsletter that provides an update on the progress of Orica's Water Recycling Program.

Further planning on the combined workshop with Sydney Ports to discuss the interface of the groundwater cleanup and the Port Development is expected to take place at the April CLC meeting.

7.2. Newspaper Columns

Three newspaper columns were published in both the *Southern Courier* and *St George and Sutherland Shire Leader* since the last CLC meeting. These columns incorporated information on a range of Orica projects. Reporting on the BGC Project was as follows:

- *Column 73: 18 December 2007:* GTP scheduled annual maintenance shutdowns, and changes to Orica Rainwater Tank Rebate Program;
- *Column 74: 29 January 2008:* GTP average treated groundwater volume and operations update; and,
- *Column 75: 26 February 2008:* notice of upcoming closure of the Rainwater Tank Rebate Program and April CLC meeting.

7.3. Website

The website is an important tool which provides immediate access to information about the BGC Project and supports Orica's commitment to open and transparent communication.

The following material has been posted on the website since the last CLC meeting:

- Groundwater Cleanup Plan Progress Report No.16 and Appendices;
- Recent newspaper columns;
- December CLC newsletter;
- CLC Briefing Paper, December 2007;
- Presentation materials from December 2007 CLC Meeting; and,
- Independent Validation Audit Report, September 2007.

As it has been reported to the CLC, Orica released a new webpage for the BGC Project on 26 February 2008 (www.oricabotanytransformation.com). Changeover to the new website has meant that website visitor data is not available this quarter.

7.4. 1800 Number

Orica continues to operate the free-call number, 1800 025 138. The majority of calls during this reporting period related to Orica's Rainwater Tank Rebate Program. Other calls included queries relating to groundwater use, bore testing, BIP issues, community events and numerous requests for a 2008 Orica Community Calendar.

7.5. Email Feedback

No emails were received in this reporting period from users of the Orica Botany Groundwater or Botany Transformation Projects websites.

7.6. Outreach Projects

As the CLC is aware, Orica operates a number of outreach programs in the local community. The programs have been developed to respond specifically to community concerns surrounding the groundwater contamination issue. A brief update on matters occurring in this reporting period is provided for each of the Outreach Projects below:

Residential Bore Monitoring – As previously reported to the CLC, 13 residential bores were tested in the November 2007 monitoring event. The results have been shared with the wider community through CLC Newsletter No. 27 and March 2008 newspaper column. The next round of residential bore testing is planned to take place in early May 2008.

Rainwater Tank Rebate Program – At the time of writing, 962 tanks had either been installed or approved for installation. The program will end on 30 June 2008, and a notice of its closure was printed on the February 2008 newspaper column.

8. ATTACHMENTS

- a) Executive Summary of Progress Report No. 17

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| | REPORT No: EN.1591.61.PR023 | Rev: 0 |
| GROUNDWATER CLEANUP PLAN PROGRESS REPORT NO. 17 | | |

EXECUTIVE SUMMARY

The NSW Environment Protection Authority (EPA), now part of the Department of Environment and Climate Change (DECC), issued Orica Australia Pty Ltd (Orica) with Notice of Clean Up Action (NCUA) No. 1030236 on 26 September 2003, under the Protection of the Environment Operations (POEO) Act 1997. This document is the seventeenth report submitted in accordance to NCUA Condition 4G. The reporting interval for this report is 1 October 2007 to 31 December 2007, however if more recent and relevant information is available it is also included.

Orica engaged URS to complete a quarterly monitoring event in December 2007 in accordance with the agreed monitoring plan. Results and discussions are provided below.

Hydraulic Containment

- Hydraulic containment was generally achieved at the BIP containment line (with the exception of during the November/December 2007 GTP shutdown), although hydraulic containment of shallow aquifer may not have been achieved at the far southern end of the Second Street containment line and the far northern end of the First Street containment line. During the scheduled GTP maintenance shutdown, groundwater heads in the deep aquifer increased above the target levels to between 4.0 and 4.5 mAHD. Subsequent pumping may have recaptured groundwater that passed the containment lines following the shutdown. However, it is important to note that containment is not required under the notice and the BIP line is operated as capacity allows.
- Hydraulic containment in the deep aquifer was generally achieved at the PCA, with the exception of during the GTP shutdown in November/December 2007. Hydraulic heads were typically similar to or up to 0.5 m below the target levels, with the exception of MWB02 where higher groundwater elevations were recorded in October and November 2007. During the scheduled GTP maintenance shutdown, hydraulic heads in the deeper aquifer at the PCA increased above the target levels to between 1.5 and 2.5 mAHD. Subsequent pumping may have recaptured groundwater that passed the containment lines following the shutdown.
- Hydraulic containment was generally achieved in the deep aquifer at the SCA for the entire December 2007 monitoring period with the exception of the GTP shutdown in November/December 2007. Consistent pumping following the shutdown resulted in drawdown of the deep aquifer to below target levels in all monitoring wells (except MWF10) throughout the remainder of December 2007 (and continuing into 2008). Following the shutdown, pumping rates were set to maximise (to the extent practicable) the recovery of groundwater that may have passed the line during the shutdown. Hydraulic heads also exceeded targets at several monitoring locations (MWF13 and MWF12) at the eastern end of the SCA during October 2007 due to the poor performance of EWF28D (and EWF26D to a lesser extent). Once EWF28D was repaired, the increased pumping resulted in hydraulic heads below the target level.

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Chemical Monitoring

- The inferred distribution of volatile CHCs in the shallow groundwater within Southern Plumes during the December 2007 presented a generally stable or decreasing trend against historical data and is generally consistent with that reported in previous monitoring rounds.
- Although there was variability, with increases and decreases in concentrations depending on location and depth, concentrations of volatile CHCs within the Central Plumes are generally stable or decreasing and are consistent to that reported in previous rounds.
- The inferred distribution of volatile CHCs recorded within the Northern Plumes in shallow groundwater during December 2007, and particularly EDC and CTC, which represent the majority of the contaminant mass, are stable and decreasing and are consistent with historical data.
- In general, volatile CHC concentrations measured in pore water within Penrhyn Estuary are similar or lower than historical concentrations.
- The proportion of EDC relative to total volatile CHCs was lower than historically observed in samples collected from Springvale Drain and Penrhyn Estuary.

Implications for Human Health Risk Assessment (HHRA)

With respect to the western margin of the Northern Plumes, none of the data presented in the December 2007 quarterly monitoring report affects the conclusions of the Consolidated HHRA (URS, 2005e) and Addendum (URS, 2006b).

Based on the data collected to December 2007 (and considering the additional review of data presented in the June 2007 monitoring report (URS, 2007e)), the conclusions presented within the HHRA associated with exposures within the estuary remain unchanged. That is, given the conservative nature of the range of assumptions and the safety factors applied to toxicity values, the risks to human health for all exposure scenarios are considered to be low. However, the assessment has identified worst-case exposure scenarios (particularly within the inner estuary) where the calculated risks exceed the target values, however the assessment was based on higher concentrations of contaminants than observed in this monitoring event.

Shutdown

The GTP annual shutdown occurred between 15 November 2007 and 7 December 2007. The shutdown extended for longer than was initially planned due to a fault that occurred with a key valve that was only revealed once the plant was almost online, and a delay to the startup to allow completion of transformer oil treatment that was indicated during preventative maintenance checks. Over 350 jobs were executed without any environmental or safety incidents

Operational Performance

An average of 4.0 ML/day of contaminated groundwater have been extracted and treated by the GTP during this reporting period. This figure includes downtime when

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the plant wasn't operating – most notably due to the November/December GTP shutdown – hence the plant often treated significantly more than 4.0 ML/day when on-line.

Several issues are still challenging the GTP team and progress is being made with respect to increasing the capacity and efficiency of the pumping system and the GTP.