



Orica Botany Groundwater Project Groundwater Cleanup Plan

Progress Update Presentation for Community Liaison
Committee

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19 June 2007

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- Groundwater Cleanup Progress
- Springvale Drain Vapour Monitoring
- Ecological Monitoring at Penrhyn Estuary
- DNAPL Treatment Investigation Update

GTP Performance

Decreased Rate of Groundwater Treatment

- Early May – fouling in GAC filter
 - Cleaning of GAC filter → fouling in cartridge filter
 - Subsequent decrease in treatment rate (down to 2 ML/day)
 - Temporary solution: clean & reuse filters
 - New cartridges were delayed until August, but now arrived
- Late May – reverse osmosis (RO) unit cleaning



GTP Performance

Biological Fouling

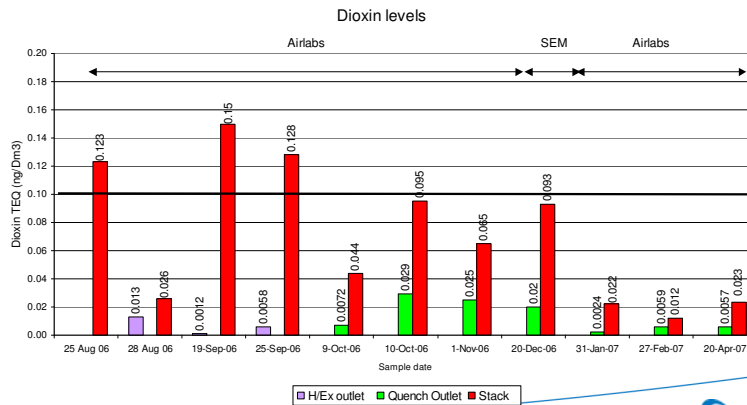
- Air Strippers
 - pH control (some acid addition)
 - maintaining excellent removal rates
 - regular mineral buildup requires cleaning
 - some minor fungal growth
- Secondary RO Units
 - Continue to suffer with limited run time
 - Ongoing trials to optimise



GTP Performance (cont.)

Thermal Oxidiser

- All standard measurements in specification since October
- Now monitoring for dioxins every second month



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GTP Performance (cont.)

Chloramine Discharge

- DECC advised ongoing discharge unacceptable
- Investigations to minimise or eliminate chloramine in discharge
 - Sodium metabisulphite application trialed
 - Removes chloramine but produces ammonia
 - › DECC have suggested increased ammonia discharge limit
 - › Orica required to enter into Pollution Reduction Program



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GTP Performance (cont.)

Odour Monitoring

- 18 month program
- Area surrounding GTP – five sites
- Samples
 - 2 prior to GTP commissioning
 - 4 after GTP commissioning
- Results:
 - Background odour present throughout entire study
 - Odour level mostly below recognition threshold
 - > 3 occasions with stronger intensity: cereal; sewage; soil
 - > Odour source upwind of GTP
 - Background odour unrelated to GTP operation
- GTP Odour Monitoring Program now complete



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Groundwater Cleanup Progress

Operation Performance

- As of 31 May 2007
 - 1,460 ML groundwater treated
 - 330 tonnes of CHCs recovered

Hydraulic Containment

- SCA Hydraulic containment achieved in areas where the concentrations exceeded the relevant water quality guidelines
- PCA containment good
- BIP containment improving

CHCs in Springvale Drain

- Surface water concentrations of volatile CHC concentrations in Springvale Drain in Southlands continue to be low



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Springvale Drain Vapour Monitoring Program

Background

- 2005: EDC detected in air along Springvale Drain at higher concentrations than considered in the Consolidated HHRA
- Limited public access areas (only McPherson St) adjacent to this section of the drain
- 2006: Further air monitoring showed a decrease in volatile CHC concentrations
- Hydraulic monitoring: Shallow groundwater levels near Springvale Drain reduced below the base of the drain

New Program May - November 2007

- Assess whether hydraulic containment and treatment is
 - Reducing volatile CHC concentrations in surface water and air, and
 - Is able to maintain the risk profile at an acceptable level
- Determine if current risk profile is within acceptable guidelines for workers adjacent to the drain

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▀ **Ecological Monitoring at Penrhyn Estuary**

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Ecological Monitoring Program

Scope:

- Assess potential adverse ecological impacts of hydraulic containment at receiving environments
- Monitor potential impacts to surface water, organisms' habitats and marine vegetation
 - Physico-chemical changes in Penrhyn Estuary
 - Ecological habitat and diversity changes of organisms

Study Period:

- July 2005 - July 2007
 - 5 monitoring rounds completed
 - Monthly bird monitoring to be completed this month



Ecological Monitoring Program (cont.)

Monitored Organisms:

- Wading shorebirds
 - To assess potential impacts to benthic community
- Dune vegetation
- Seagrass
- Saltmarsh
- Mangrove
 - Monitored to rule out any changes in seagrass/saltmarsh community attributable to mangrove habitat invasion



Results to Date

- No adverse effects to ecological receptors identified to date
- Final report due shortly

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▶ **DNAPL Treatment Investigation Update**

DNAPL Treatment Technology Investigation Update

- Orica co-funding innovative technology research at University of WA
 - Electrokinetics
- In situ chemical oxidation
 - Laboratory testing continues with positive outcomes
- Proposed thermal treatment field trials
 - Location: former Solvents Plant area at BIP



