

Air Quality Monitoring – Dust

Dust concentrations are monitored using a tapered element oscillating micro balance analyser (TEOM), fitted with an inlet sized to measure PM10 concentrations. PM10 refers to any particulate matter with an aerodynamic diameter less than or equal to 10 microns (i.e. a diameter of 10 millionths of a metre). Monitoring with the TEOM is carried out with consideration to Australian Standards.

Particulate matter includes a broad range of substances, with aerosol particles found in the atmosphere originating from a number of both natural and anthropogenic (human-made) sources. PM10 includes, among other sources, soil dust mineral materials, as well as particles generated by motor vehicles and other combustion processes that burn fossil fuels. Smoke particles from bushfires are another sporadic source of PM10 emissions.

Continuous PM10 monitoring is undertaken at a property in Blaxland Road, Rhodes, that is considered representative of the residential receptors closest to the Rhodes Remediation Projects. Continuous measurement of PM10 dust concentrations at the Blaxland Road receptor enables a quantification of ambient air quality. The real-time dust monitoring system allows Thiess Services to promptly respond to environmental conditions and thereby minimise short-term dust episodes.

The national 24-hour exposure standard for PM10 in air is specified in the National Environment Protection Measure for Ambient Air Quality (also referred to as the Air NEPM) and is set at a concentration of 50 µg/m3. This 24-hour concentration level should be exceeded no more than five times in a given year. Thiess Services have adopted this goal for the monitoring of PM10 concentrations at the nearest residential receptor. An exceedance of the 50µg/m3 goal requires (following investigation, control and any additional

on-site management) notification by Thiess Services to appropriate regulatory authorities, including the NSW Department of Environment and Conservation.

Average 24-hour dust concentrations at Blaxland Road, as well as minimum and maximum hourly concentrations measured daily by the TEOM, are shown via graphs posted on the website, www.rhodesremediation.com.au



Above: Kristopher Hincks, Environmental Engineer – Parsons Brinckerhoff, views the TEOM.

The Rhodes Community Consultative Committee (RCCC)

The RCCC is comprised of approximately 30 members from communities surrounding the Rhodes Peninsula, including Rhodes, Concord West, Homebush Bay, Liberty Grove, Meadowbank, West Ryde and Melrose Park. An additional 20 members represent developers and remediators working in the area; State Government Departments such as the Department of Planning, the Department of Health, and the Department of Environment & Conservation; and Local Government Councils such as the City of Canada Bay Council and Ryde Council.

The committee meets monthly, and is presented with updates and data on the remediation and development projects by the proponents involved. The RCCC has an independent Chairperson, Mr John Kent. John's contact details are 0419 497 033 or jk@wwsydney.com

You are most welcome to join the committee or attend a meeting as an observer. For information about the next meeting, please call the Thiess Services Community Contact Line on **1800 009 414**.

Project Activities - the next 3 months

Lednez & Homebush Bay project

- Excavation and backfilling work continues throughout the site
- Validation following excavation of contaminated material
- Stockpiling, covering and storing of material needing treatment until the ITD Plant is constructed and commissioned
- Construction of enclosure over contaminated material stockpile
- Ongoing Water Treatment Plant operations
- Construction of temporary sewer pump station

- Construction of sewer in area where excavation is complete
- Additional odour control methodologies to be trialled
- Continued environmental monitoring
- Installation of temporary shoring to sea wall
- Demolition and reconstruction of sea wall commences

Allied Feeds project

- Excavation of contaminated materials requiring treatment continues in the western area of the site
- Excavated materials not requiring treatment continue to be stockpiled and tested for reinstatement on site
- Final proof of performance testing for the DTD plant will be completed in September 2006
- Full scale operations for the DTD plant will commence following the proof of performance
- Additional noise mitigation controls for the DTD plant and the pre-treatment building emission control system will be installed
- Pre-processing of contaminated materials needing treatment in the pre-treatment building
- Removal of surplus bulk earthworks materials from the site to landfill
- Commencement of the replacement seawall and sewer construction works
- Continued environmental monitoring

Community Contact Details

We value your feedback. If you have any questions or concerns, please let us know.

Ph: 24 hour toll free line: 1800 009 414 **E-mail:** rhodesremediation@thiess-services.com.au

Web: www.rhodesremediation.com.au **Post:** 40 Walker Street, or PO Box 3064, Rhodes NSW 2138

Thank you for your cooperation and patience during these environmental remediation works.

Rhodes
REMEDIA
PROJECTS
Homebush Bay and the former
Lednez and Allied Feeds sites



24 hour toll free line
1800 009 414
www.rhodesremediation.com.au

NEWSLETTER

August 2006, Issue 4

In this Issue:

- Innovative odour controls
- How dust is monitored
- Project activities – next 3 months

Welcome to the fourth project newsletter for the Thiess Services Rhodes Remediation Projects ...aimed at keeping the community informed of the remediation activities underway.

To the Community Member
Rhodes Remediation Projects
Community News

DTD Plant Stack Emission Test Results

The DTD plant, located on the former Allied Feeds site, heats soil excavated from the site to destroy the contaminants within it. The vapour coming from the plant's stack, that is visible in the air, is water.

In June and July, once the plant's optimal treatment temperature had been established, the stack was emission-tested whilst processing some of the most highly contaminated material found on site. This is a requirement of the DTD plant's operating licence and provides assurance that the emission system is working properly. It also demonstrates that the plant's gas discharge quality complies with emission criteria set by the Department of Environment and Conservation (DEC). So long as the DTD plant operates at its optimal temperature, emissions should remain below the set emission limits. If pressures, temperatures or flows fall outside the predetermined range, an alarm is activated. Corrective action must be undertaken or the plant's soil feed stops automatically.

The table below outlines the results achieved during the DTD plant's first round of emission testing. All chemical and particulate stack emissions were below licence limits by between 2 and 100 times.



Stack Emission Parameter	Concentration at 11% O2	DEC (EPA) Limit	Status
Total Particulates (mg/m3)	11.6	25	Pass
Total Fluoride (mg/m3)	2.1	45	Pass
Sulphuric Acid Mist (mg/m3)	8.8	90	Pass
Volatile Organic Compounds (ppm)	0.8	9	Pass
Nitrogen Dioxide (mg/m3)	120	450	Pass
Carbon Monoxide (ppm)	4.3	90	Pass
Hazardous Substances (mg/m3)	0.08	0.5	Pass
Cadmium (mg/m3)	0.0054	0.1	Pass
Mercury (mg/m3)	0.012	0.1	Pass
Hydrogen Chloride (mg/m3)	0.08	90	Pass
Chlorine (mg/m3)	0.4	180	Pass
Dioxins (ng/m3)	0.0379	0.1	Pass



THE CLEAN UP CONTINUES

Thiess Services commenced remediation works at two neighbouring sites on Walker Street, Rhodes, in 2005. The sites are known as the former Lednez/Union Carbide site and the former Allied Feeds site. Both sites require remediation (a clean-up of the soil) as a result of past chemical manufacturing works on the former Lednez/Union Carbide site.

For more details on the history of these sites, to view environmental information or to download copies of the newsletters, visit www.rhodesremediation.com.au

Strict environmental controls and standards are being implemented on both sites to ensure the health and safety of workers and the community. All work is being undertaken in close consultation with Local Government and community members, as well as with State Government regulators including the Department of Environment and Conservation (DEC), the Department of Planning and the Department of Health.

Did you know?

- The sense of smell, called olfaction, involves the detection of chemicals floating in the air. No one knows what actually causes olfactory receptors to react – it could be a chemical molecule's shape or size or electrical charge.
- People can distinguish between 3,000 and 10,000 different odours.
- The most toxic components of chemicals aren't necessarily the most odorous, and vice versa. For example, natural gas is odourless but it can be dangerous to breathe in high concentrations. That is why gas companies add a smelly chemical to natural gas.
- Environmental monitoring can detect odorous and odour-free chemicals.

Stockholm Convention Conference

Australia is a signatory to the Stockholm Convention on Persistent Organic Pollutants (POPs). POPs are regarded as a serious problem in the environment today because they are difficult to destroy, they accumulate in the food chain and they present a potential health threat. Parties to the Convention have agreed to take measures to minimise or eliminate POPs.

POPs are more widespread than you may think. Many have been created as industrial products and include organochlorine pesticides such as DDT and PCBs, which were once used in electrical equipment. Other POPs are formed as unintentional byproducts of industrial and natural processes such as dioxins and furans, and hexachlorobenzene. POPs, such as dioxins, are formed in small quantities by all combustion processes, including bushfires, incinerators and your car engine. Where they occur as hotspots around old industrial sites (such as Homebush Bay), they may cause major social and technical challenges for government, industry and the community.

Representatives from Thiess Services participated in a three-day conference about the Stockholm Convention, which was held in June at Sydney Olympic Park. The conference focused on the clean-up of POPs in the Asia-Pacific region. As well as local delegates, approximately 20 delegates

from Pacific nations and Southeast Asia attended the event, courtesy of the Australian Department of Environment and Heritage.

Doug Moss, Thiess Services' Manager - Estimating and Engineering, spoke about the history and extent of contamination that existed at Sydney Olympic Park, and how remediation was undertaken in the lead up to the 2000 Olympic Games. Dr John Hunt, Thiess Services' Technical Manager spoke on the application of the Stockholm Convention to the Rhodes Remediation Projects.

A workshop on thermal technologies for the treatment of POPs was given by Dr John Hunt and Dr Bill Troxler, an invited speaker from the USA. Workshop attendees participated in an inspection of the former Allied Feeds site, where they viewed the DTD plant, the soil pre-treatment building and the water treatment plant.

Bill Troxler informed conference delegates that the management of fugitive dust is generally the most significant risk factor during remediation projects, not thermal treatment plant stack emissions. He said that treatment plant emissions are usually less than 1% of total project air emission risks.

Read about monitoring dust levels in the community on the back page.

Introducing... Matt Lyle, Senior Project Manager, Lednez & Homebush project.

Matt joins the Lednez & Homebush Bay team after four and a half years with Thiess Services, during which time he has managed a range of contaminated site remediation and civil infrastructure projects, both in New South Wales and in New Zealand. Prior to joining Thiess Services, Matt worked for Walker Civil Engineering for 12 years, focusing on civil, marine and remediation projects. Matt holds a Bachelor of Engineering (Civil) Degree from the University of Technology, Sydney. Matt has two children, Kate and Alex, and is a keen baseballer, both as a player and an administrator.

"When not at work or on the baseball diamond, I like to unwind with the occasional surf, game of golf, or by relaxing with friends over a good meal and a bottle (or two) of red wine," says Matt.

Matt is excited to have joined this significant project and looks forward to the challenges that it will present over the next two years. Matt replaces Jim Maniord, who has been promoted to the position of Manager, Landfill and Remediation, NSW/ACT.



Above: Matt Lyle presents a cheque donation to City of Canada Bay Councillors, Jeanette O'Hara and Helen McCaffrey, towards the upgrade of the Rhodes Community Hall.

Odour Control Innovations

Where is the odour coming from?

The odour that can sometimes be detected in the local area is produced when contaminated soil from the project sites is excavated and stored prior to treatment. Similar odour may also be generated from the Homebush Bay sediments when remediation works commence in the bay, in the near future.

By its very nature, odour is difficult to contain. In particular, many of the chemicals present on the remediation sites are volatile organic compounds, meaning that when soil is disturbed, odour may be emitted into the atmosphere. The human nose is quite sensitive to these odours and can detect them at very low concentrations.

Odour management practices

Work practices on each site are constantly being reviewed and improved to minimise odour as much as possible. Spray misting systems operate along site perimeters and within various on-site zones to help control odour and dust. The sprays use a combination of mains water and non-toxic odour-masking agents that are not harmful to health. Open excavation faces that contain odorous materials are covered with industrial-strength tarpaulins or sprayed with hydromulch at the end of each working day. In some circumstances, a top cover of non-odorous soil may be added to excavation faces or a soil-bonding agent may be sprayed to seal them.

Developments and innovation

Over the last few months boom-mounted sprays have been fitted to some of the excavators working on the most odorous



Above: Boom-mounted odour control spray

site areas. These specially mounted fixtures spray water and odour-masking agent directly onto the soil being removed by the excavator bucket. Hand-held gurneys continue to be used to spray excavation faces with water and odour-masking agent from the ground level.

"At last month's community liaison group meeting, members gave their opinions of some of the new odour-masking agent fragrances that are being trialled. A fruit-flavoured suppressant was the most popular," says Catherine Fletcher, Community Relations Manager.

Currently, a spray foam agent is being evaluated with the assistance of an odour control specialist. This foam, which is similar to the foam that fire-fighters use on petrol fires, contains an odour control agent. When it is sprayed to cover work areas, it may help minimise odorous emissions.

Thiess Services understands that odour from the remediation projects is sometimes unpleasant and consequently, management is committed to finding new ways to reduce its impact. Recently, a decision was made to build a structure



Above: To help minimise odour, a structure similar to the one above will be built over the contaminated soil containment pit on the Lednez site.

over the contaminated soil containment pit on the Lednez site. This structure will be approximately 100 metres long by 100 metres wide and 12 metres high.

"Similar structures have been used successfully by Thiess Services on remediation projects in Queensland. They can help minimise the concentration of odour that is picked up by wind and carried into the community. It is expected that when this structure is built, local air amenity conditions will improve," says Matt Lyle, Senior Project Manager, Lednez site.

On the Allied Feeds site, the sealed pre-treatment building is effectively suppressing emissions from stockpiled odorous materials.

Odour and health

To guard against long-term adverse community health impacts, environmental monitoring for odour is conducted at the workplace, at site boundaries and in the community. To date, environmental monitoring results have been within human health protection limits. Recently, Professor Garry Smith, Director of Environmental Studies at the University of NSW, and Doctor Kerry Holmes of Holmes Air Sciences, analysed data accumulated between January and May 2006 before making a presentation about odour and health to the community. They confirmed that monitoring so far indicates that chemical concentration levels being recorded at site boundaries are not toxic but on occasions, will be odorous.