

Case Study



Former Allied Feeds Site, NSW

Green File

This is a highly sensitive project requiring attention to detail, specialist equipment and third party auditing to ensure environmental validation standards are met.



Location

Rhodes, NSW

Client

Meriton Apartments Pty Ltd

Value

\$45 Million

Duration

Contract awarded February 2005;

mobilised to site August

2005;

Project completion July 2009

Contract Type

Contract Agreement –

Lump Sum

Referee

Benjy Levy

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Thiess Services was contracted to remediate the soil at the former Allied Feeds site at the Rhodes Peninsula in Sydney's inner-west.

More than 185,000 tonnes of contaminated soil was cleaned up using thermal treatment technology on a scale never before seen in the southern hemisphere. Over four years, the massive remediation project on the eastern shore of Homebush Bay transformed the old Allied Feeds industrial site into safe, usable land.

Although the site had hosted a grain mill since 1919, it became contaminated during the 1960s and 1970s when chemical manufacturing wastes produced by the neighbouring Union Carbide company were used to reclaim land in Homebush Bay. Backfilling the lime and ash wastes along the foreshore of the bay enabled the size of the land to be increased and seawalls to be constructed but it also led to contamination of the site with dioxins, organochlorine pesticides and other pollutants.

After the extent of the land contamination and its impact on Homebush Bay became known, the NSW Government called for the site to be cleaned up. In 2006, Thiess Services began treating the contaminated soil on site for the owner of the land, property developer Meriton. A treatment process known as directly-heated thermal desorption, or DTD, was used to remove contaminants from the soil.



All of the contaminated soil across the six hectare site was treated by DTD. This involved heating the soil to between 450°C and 550°C in a rotary drum, forcing the contaminants to separate from the soil as gas. The gas was then heated to between 930°C and 1000°C, converting it into a gas stream of carbon dioxide and water. To prevent the contaminants from reforming, the gas stream was rapidly cooled by a fine water spray. It then passed through a large fabric filter to remove dust and a scrubber to remove any hydrochloric acid that may have formed, before being released to the atmosphere.

An independent environmental audit process that involved extensive laboratory testing of treated soil confirmed the soil could be re-used on site. The material re-use criteria was developed to protect both human health and the environment. An Auditor accredited by the Environment Protection Authority (EPA) oversaw the process.

The former Allied Feeds site is now clean enough for Meriton to develop residential apartment complexes and public open spaces with direct access to the waterfront. Future residents can be assured that the site meets all of the health and safety requirements of current NSW residential zoning laws.

Thiess Services assumed total responsibility for obtaining all approvals and permits for the project. This involved the preparation of a development application, an environmental impact statement, human health risk assessments, ecological risk assessments, remedial action plans and technology licence applications.

Quantities

Material Treatment: Approximately 185,000m³

Additional Bulk Excavation Work: 100,000 m³

Challenges / Unusual Features

Given that the former industrial sites at the Rhodes Peninsula are well recognised as having contained some of the worst contamination known, including organochlorine pesticides and dioxins, rival remediation contractors, regulators and consultants have shown great interest in how DTD technology was applied to such a complex project.

Operation of a commercial scale thermal treatment plant within a growing residential area and compliance with licence conditions in relation to noise and emissions were significant challenges for the project.

The DTD plant operated 24 hours a day, seven days a week with the nearest residents living approximately 100 metres away from the plant.

The nature of the material requiring treatment was highly variable, with lime sludges containing as much as 45% moisture. Pre-treatment blending of the material and the reduction of its moisture content to less than 20% took place in a specially designed building that operated under negative pressure. Such activities were critical to the overall success of the treatment process.



OHSE

Strict OHSE precautions were implemented in accordance with international standards for the handling of the contaminants found on site. A health monitoring program, including periodic blood testing for all site personnel, was maintained throughout the project.

Thiess Services employed emission testing specialists to monitor the quality of the gas discharged from the DTD plant and ensure emission levels met strict criteria set by the project regulator, the NSW Department of Environment, Climate Change and Water (DECCW).

Environmental monitoring data was submitted in monthly reports to the DECCW and presented electronically to the Rhodes Community Consultative Committee (RCCC). At monthly meetings, RCCC members reviewed project progress reports and environmental monitoring data and gave feedback to Thiess Services project team members. The local community was notified via email whenever odourous excavations may impact them.

Community Engagement

The adaptation and improvement of standard community engagement strategies enhanced stakeholder relationships and built a positive public profile for the project.

A project that was initially perceived by many community members to be high-risk was quickly accepted after community education processes were implemented.

