

Newcastle Steelworks closure area, Newcastle (NSW)

Introduction

INNOVA SOIL TECHNOLOGY Pty Ltd successfully treated a 6000 T stockpile of hydrocarbon contaminated soil located at the Koppers Carbon Materials and Chemicals (KCMC) coal tar and naphthalene distillation facility in Mayfield, Newcastle NSW. Approvals were granted by the NSW Government to undertake the project, with works beginning in January 2006. This brief case study describes the Koppers stockpile remediation project and the development approvals granted, a following case study describes the results of a 150 T treatment trial of the Koppers soils prior to undertaking the final project.



The project

The remediation project involved the transportation of stockpiled soil to the **INNOVA** Plant at the BHP Closure Area (part of the former Newcastle Steelworks), treatment of the contaminated soil at the **INNOVA** Plant, post-treatment validation and transport of the treated soil back to the Koppers Facility. The purpose of the proposed project was to remediate the contaminated soil to allow its beneficial reuse as clean fill within the Koppers Facility.

The site and stockpile background

The proposed activity location was in the suburb of Mayfield in the City of Newcastle, NSW. The distance between the Koppers Facility and the **INNOVA** Plant was approximately 2.5 km by road. The activity locations were surrounded by various large industrial developments including OneSteel, Sandvik and the former BHP Steelworks (the Closure Area). The transport route between the activity locations was provided via George Bishop Drive, an internal road within OneSteel land. Please see the transport route for the contaminated soil in the figure above. Mayfield residents were located within 500m of the soil stockpile, transport routes and the **INNOVA** treatment plant.



4. Koppers Stockpile Project: EIS & EPA Licence (2005)

The Koppers Facility at Mayfield was opened in 1968 at a time when environmental management requirements were less stringent. Over time, Koppers undertook a number of improvement works to reduce the environmental impact of its operations and to control the potential for the contamination of soil and groundwater within the site. In carrying out these works Koppers recognised that the dumping of any removed soil or fill soil, that was contaminated, with even very small amounts of hydrocarbons, was not desirable and so this soil was stockpiled on the Koppers’ Facility. Since the stockpiling of contaminated soil began in the early 1980’s, Koppers has been trying to identify an acceptable process to remove the hydrocarbons from the fill so that the remediated soil minimises the potential for any future environmental impacts – INNOVA’s DFTD process provides the solution. Please see table 1 over-page for a summary of the hydrocarbon contaminant levels within the soil.

Average Soil Properties of the Stockpiled Soil on the Koppers Facility

Substance	Concentration	Substance	Concentration
Benzene	< 0.3 mg/kg	Total Polynuclear Aromatic Hydrocarbons (PAH)	3,290 to 6,210 mg/kg
Toluene	< 0.4 mg/kg	Phenol	< 0.5 mg/kg
Ethyl Benzene	< 0.2 mg/kg	Cresols	< 0.5 mg/kg
Total Xylenes	< 0.8 mg/kg	Cyanide	20 to 60 mg/kg
Total Petroleum Hydrocarbons (TPH)	5,972 to 16,390 mg/kg	Total PCB’s	NA

Approvals

To undertake the remediation project various approvals had to be sought and detailed consultation undertaken. In line with this, an Environmental Impact Statement (EIS) was prepared to accompany a Development Application (DA) submitted under the requirements of Part IV of the Environmental Planning and Assessment Act 1979. The EIS provided an assessment of the potential environmental impacts of the proposed activity and recommended safeguards to minimise any potential impacts on the environment. The proposed remediation activity was classed as a “designated development” as it involved “contaminated soil treatment works treating more than 1,000 cubic metres per year of contaminated soil not originating from the site on which the development is located” and therefore met the definition under Schedule 3 of the Environmental Planning and Assessment Regulation 2000. Further, the proposed activity was an integrated development due to the requirements of the Protection of the Environment Operations Act 1997 (s. 5). An Environment Protection Licence (EPL) was required from the Department of Environment and Conservation (DEC) for the Innova plant as it is a “contaminated soil treatment works” that will “handle more than 1,000 cubic metres per year of contaminated soil not originating from the site on which the works are located”.



4. Koppers Stockpile Project: EIS & EPA Licence (2005)

INNOVA was awarded approval to undertake the remediation works by both the NSW Department of Industry Planning and Natural Resources (DIPNR) and the NSW Department of Environment and Conservation (DEC). An Environmental Protection Licence (EPL No. 11866) was issued for the **INNOVA** mobile plant to undertake the contaminated soil treatment works.

Community consultation

INNOVA's approach from the companies outset, has been to consider concurrently the technological, environmental and social / community aspects of any remediation project. **INNOVA** benefited from such an approach, during the Koppers project approvals process, with wide community support for both **INNOVA's** technology and Koppers cleanup. The strong level of support can be evidenced from a small extract of a letter, addressed to the NSW Planning Minister, from one of the more prominent community groups in the Hunter Region (C.A.K.A) – Please see below.

<p>(Ms) Pat Keating Convenor CAKA (Citizens And Kooragang Alliance)</p> <p>6Hunter St Stockton 2295 02 49282837 Pkeating@hunterlink.net.au</p>	<p>...“... CAKA supports the proposed remediation by Innova Soil Technology Pty Ltd of contaminated soil at present stockpiled on the Koppers site for the following reasons:</p> <p>Innova’s Direct-heated Fast-quenched Thermal Desorption method does not have these draw backs. It has no noise, smells or polluting emissions and though it is intended for use on contaminated sites, in this case the distance is short, the roads are not public and the present site has been used for trial purposes without causing public annoyance and alarm. The cost of moving the whole plant for a short distance would not be economically viable and as the transport of polluted soil is confined to private industrial land, this deviation from normal practice is acceptable.</p> <p>6 CAKA have observed Innova from the construction stage through to the trials held on its present site on the BHP Closure area. We have had several meetings with Professor Lucas and his colleagues. They have explained in detail the soil cleansing process and we have watched the machines in action on the BHP site. Our “Technical staff” of qualified scientists has examined all facets of this operation and they have agreed with overseas and Australian experts that this process is of world standard.. This DFTD process does not form dioxins in the cooling stage as have other Thermal Desorption methods.</p>
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