

CONTAMINATION INFORMATION SHEET

Background

Contamination is not unique to the Veolia site with a number of other sites on the peninsula being subject to remediation or investigation notices by the New South Wales Environment Protection Authority (EPA) over the past 10 years.

The Veolia site was declared a remediation site by the EPA in December 2005 based on the levels of hexavalent chromium on site presenting a 'significant risk of harm' to human health and the environment.

Veolia commenced a 'voluntary remediation' process to investigate the extent of chromium contamination on site. The investigation confirmed elevated levels of hexavalent chromium in the site groundwater and the soil where the fill had been locally contaminated with Chrome Ore Processing Residue. This contaminated material was sporadically used as fill material across the Camellia Peninsula prior to Veolia owning the site.

Contamination

Following the investigation, Veolia submitted a Voluntary Remediation Proposal to the EPA, which outlined measures to manage and further assess the contamination at the site. The Voluntary Remediation Proposal was approved by the EPA and Veolia finalised a Voluntary Remediation Agreement in June 2009.

As part of the Voluntary Remediation Agreement, Veolia undertook a pavement dilapidation survey, relined the stormwater drains, prepared a stormwater monitoring report, and undertook further assessment of the hexavalent chromium in the groundwater. In December 2010, EPA issued Veolia with a letter advising that the terms of the Voluntary Remediation Agreement had been carried out satisfactorily, however further works would be required to ensure the long term management of the contamination on site.

Current Remediation Works

In November 2011, Veolia commissioned CH2M HILL to develop a Remedial Action Plan to manage and remediate the hexavalent chromium contaminated groundwater and shallow seepage water at the site as part of the long-term management of the contamination. Preparatory tests were undertaken concurrently with the development of the Remedial Action Plan to assist in the remedial design. The test results have been completed and the Remedial Action Plan has been submitted to the EPA for review.

Based on review of previous information and the remedial options screening, CH2M HILL considers that a combination of remedial options is the preferred remedial strategy. This involves:

- ① a physical barrier system (a “cap”), by means of containment of the site soils under the existing pavement, to prevent humans having direct contact with the site soils and also to prevent dust and leachate generation;
- ① a physical barrier system, by means of a Permeable Reactive Barrier, to prevent contaminants in the shallow groundwater and seepage water migrating across the northern boundary of the site into the wetlands adjacent to the Parramatta River;
- ① institutional controls to manage maintenance of the existing pavement;
- ① institutional controls to manage inspection and maintenance of an efficient surface water / stormwater drainage system that does not allow infiltration of groundwater into the system; and
- ① monitored natural attenuation of the deeper hexavalent chromium impacted groundwater.

CH2M HILL evaluated the different types of Permeable Reactive Barriers and different reactive media used in barriers for their application at the site and concluded that a continuous reactive barrier filled with reactive sand containing ferrous sulphide is the most suitable option for the management of the hexavalent chromium in the shallow groundwater and seepage water at the site. The Permeable Reactive Barrier will be installed to capture the identified highly conductive flows of elevated hexavalent chromium through the shallow aquifer. It is proposed that the Permeable Reactive Barrier be installed prior to the construction of the Camellia Recycling Centre.

Installation of the Permeable Reactive Barrier will be subject to a development application process lodged with Parramatta City Council as Category 1 Remediation Works under the Contaminated Land Management Act 1997. All these works will be undertaken beyond the existing fence at the northern end of the site.

Within the deep aquifer, investigations to date suggest that natural attenuation is effectively managing the presence of chromium by reducing hexavalent chromium to trivalent chromium (a safe form of chromium) when the groundwater passes through ferrous sulphides and organic matter, which are common in alluvial sediments deposited in estuarine environments. This is believed to be a sustainable means of managing the chromium in the deeper aquifer and monitoring systems will be established to demonstrate that natural attenuation continues to be an effective solution.

Existing Site Conditions

The site is currently capped, with a combination of asphalt and concrete hardstand areas, which act as an effective control measure for any potential exposure pathways to contaminated soil. A Site Specific Environmental Management Plan (approved by the EPA) is currently in effect to manage any minor disturbances to this cap.

The proposed Camellia Recycling Centre will require some disturbance of the existing cap during the construction phase to enable the redevelopment of the site. Potential exposure of contaminated soil as result of construction will be considered as part of the Environmental Impact Statement.

Veolia has experience in the management of contaminated soils and CH2M Hill has experience with the design of remediation solutions for chromium contaminated soils. These combined experiences provide the ability to effectively manage potential risks through appropriate controls measures. Any changes to the existing control measures for soil contamination would be approved by the EPA.