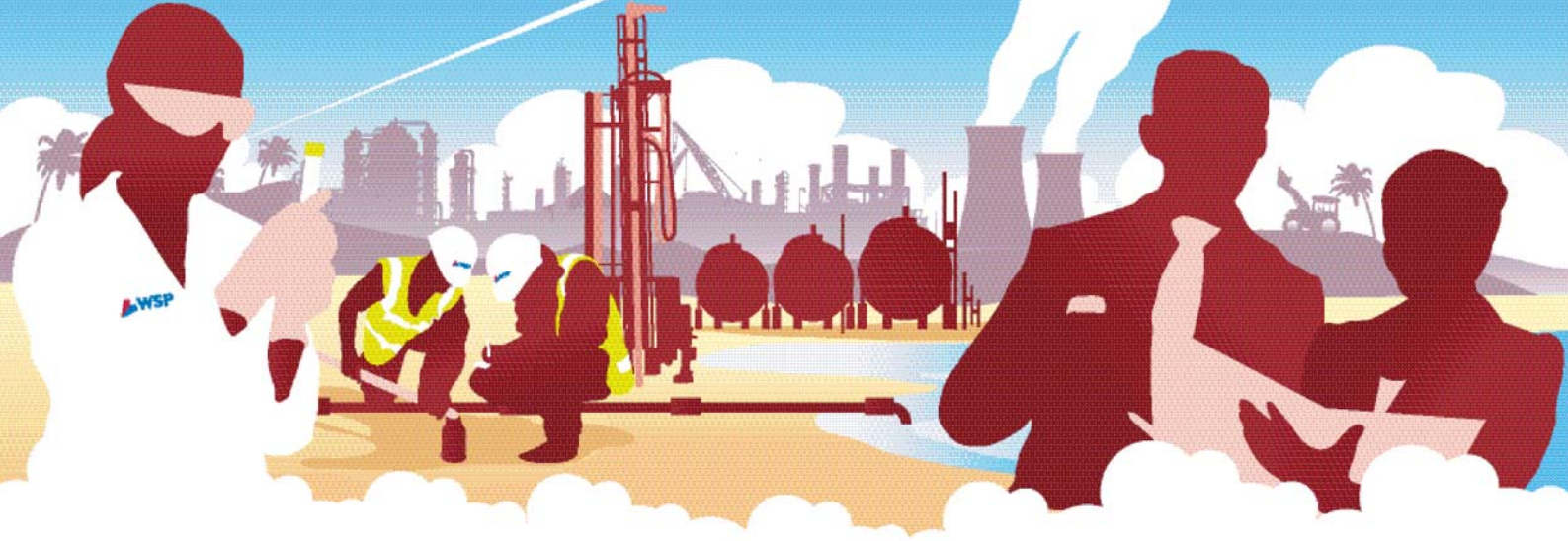

Remediation of a Former Galvanising Plant, Mascot, Sydney, Australia

Project Summary:

The site of a former galvanising plant in Mascot, NSW was subject to a court imposed remediation order as well as a remediation order by the NSW Environmental Protection Authority (EPA) following discovery of heavy metals in the site soil and groundwater (predominantly zinc). Our personnel were engaged to implement a remediation action plan – working closely with the Principal Contractor to remove the most heavily impacted soils, stabilise soils in other parts of the site, and recover zinc from the site's groundwater.

The Client's Challenge:

In order to convert the site from a worthless piece of land to valuable industrial property, the client needed to ensure that the concentrations of zinc in the groundwater were lowered from 800mg/L to less than 20mg/L and that the pH level was increased from less than 2 to between 4 and 5.

Our Work:

After conducting additional investigations to classify soil in accordance with EPA Guidelines, the most heavily impacted soils were removed to landfill across most of the site and lime was used to stabilise soils in the north western quarter of the site where soils under the groundwater table had been severely impacted, but were unable to be removed. The inclusion of lime in the soil had the advantage of also correcting the pH of the groundwater.

For the remediation of groundwater a Direct Air Flotation (DAF) water treatment was utilised to recover zinc from the site groundwater. A DAF system works by attaching micro fine air bubbles to particles in the wastewater stream forcing flotation. The air bubbles are produced by dissolving compressed air in a portion of the treated water under pressure in a specially designed dissolved air concentrator (DAC). Upon release of this pressure at the DAF inlet, the air comes out of solution in mass attaching to the particulate matter that subsequently rises to the surface and the solids mass is scrapped off and recovered as a waste. Chemical dosing of the treated water is undertaken to adjust the pH and then the treated water returned to the groundwater system through an infiltration gallery.

WSP are now monitoring the progress of the groundwater remediation and have seen significant progress toward our goal of lowering the concentrations of zinc in the groundwater and increasing the pH to an acceptable level.

The Outcome:

The project is ongoing, with all the soils across the site having been issued with a Site Audit Statement by the appointed EPA Contaminated Lands Auditor. Whilst the removal of Court Order and Remediation Order is still to be achieved, the finalisation of the groundwater remediation is now being negotiated with the NSW Department of Environment and Climate Change (DECC). We expect successful site rehabilitation and redevelopment to occur in the near future – increasing the value of this currently worthless site to become a significant industrial property in close proximity to Sydney Airport.

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