



PROJECTS

HYDROLOGY

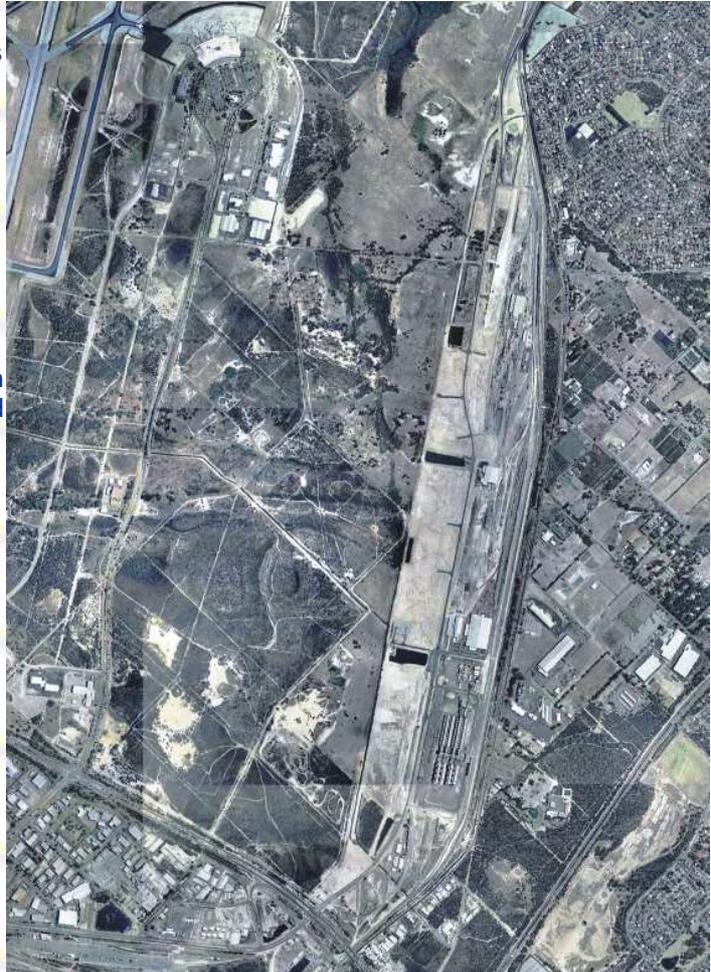
Assessment of surface water quality impacts within an artificial drainage channel, large airport site. Sw10

A main drain running through a large airport facility receives run-off from hills suburbs, groundwater discharge and surface water run-off from the airport, before discharging into a major river.

The airport monitors surface water quality within the drain at six locations over the site; this monitoring appeared to suggest that the central part of the drain may be affected by heavy metals from metal refinery site.

A review of all historical monitoring data was undertaken. Monitoring locations upflow from the refinery contained copper, lead and zinc from road and urban run-off from the hills suburbs which discharge into the drain at its inflow point to the site. Other upflow locations also contained elevated metals consistent with dewatering discharges and the influent water quality. Some of these metals were inconsistent with the metal refinery operations. Potential acid sulfate soil conditions exist locally on the site, which may also contribute to observed acidity and metals in the surface water.

The monitoring location directly downflow, and therefore potentially affected by the refinery discharges showed instances of elevated metals consistent with the refinery site operations, except for lead. Locations further downstream from the refinery did show some instances of elevated metal concentrations, however there was no increasing concentration trend apparent, and downflow locations also receive run-off from other road and urban drainages which will affect the monitoring results. At the discharge point to the river, cadmium, copper, lead and zinc exceeded ecological guideline levels.



It was concluded that periodic surface water discharges from the refinery, together with a baseflow contribution from a groundwater plume of heavy metals and acidity are affecting the surface water quality within the drain in the immediate vicinity of the refinery. However, these concentrations reduce substantially below applicable guideline levels within 200m of the discharge point. Downflow exceedances are unlikely to be due to the refinery discharge, but more likely to be due to influent urban water quality, changes to landuses, civil earthworks incorporating dewatering discharges and potentially acid sulfate soil conditions locally to the site.

HydroSolutions Pty Ltd
U14/14 Whyalla Street
Willetton
Western Australia 6155
Tel: (+61 8) 9457 5448
Fax: (+61 8) 9457 4293
Mob: 0403 021 533

E-mail: stuart.jeffries@hydrosolutions.com.au
Website: www.hydrosolutions.com.au