

PROJECTS

GIS & OTHER PROJECTS

FQM Australia Nickel

GIS Study: Groundwater & Surface Water Monitoring Rationalisation Study, Ravensthorpe Nickel Operations

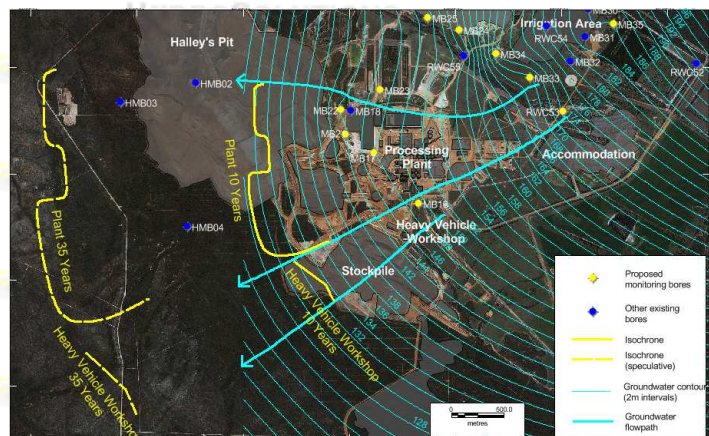


FQMAN reopened the former BHPB nickel and cobalt mining and hydrometallurgical processing operation in 2011; the site is located at Ravensthorpe, near the southern coast of Western Australia.

The ore/ mine and processing areas are located above outcropping fractured and weathered basement which is locally sheared. Tertiary sediments overlie basement locally as infill features, including the Jerdacuttup palaeochannel to the south. Groundwater occurs within the basement and overlying sediments, with the water table reflecting the subdued topography, flowing generally to the south and southwest, but locally modified by higher-permeability shear-zones and the palaeochannel. Groundwater is fresh to hypersaline, and discharges to surface water courses, including the Jerdacuttup River and tributaries to the south/ southwest.

Geographical Information System (GIS) data were acquired and generated to assist in the updated analysis of locally-variable groundwater flow, including:

- digitization of new infrastructure features on-site
- compilation of tenement, topographical and surface water layers
- compilation of all existing and disused bore data
- modelling of a detailed water table and updated groundwater flow directions
- preparation of predicted isochrones (groundwater travel time estimates) for the lifetime of the mining operation



The GIS analysis has enabled the identification of optimal bores for monitoring purposes, and areas where additional monitoring should be provided, as well as optimised recommendations for surface water monitoring.

Recommendations are made for improvements to the monitoring network to better reflect potential sources of contaminants that may impact groundwater and surface water quality.

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