

PROJECTS
HYDROGEOLOGY

Hydro29

BHP Billiton Iron Ore Triennial Aquifer Reviews, Rail bores between Newman and Port Hedland.

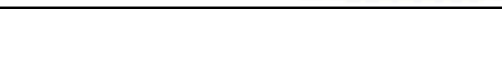
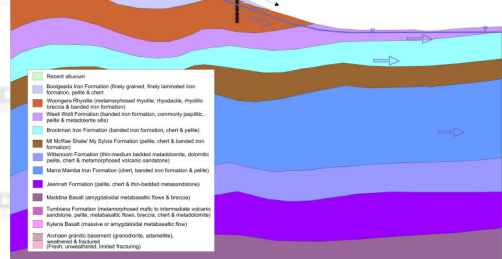
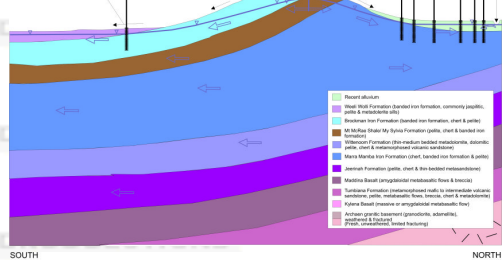
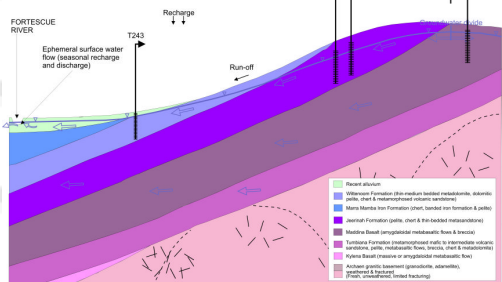
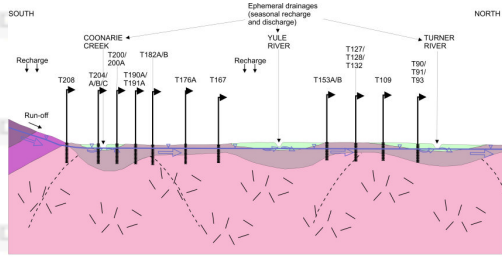
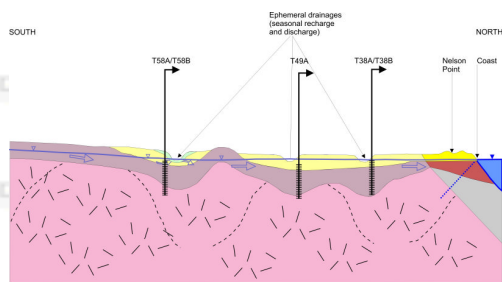
Triennial (3-year) aquifer reviews were prepared for seven Groundwater (abstraction) Licenses (GWLs) located along the rail line and spurs between Newman and Port Hedland in the Pilbara region of Western Australia.

Hydrogeological Conceptual Models were developed for each borefield or individual bore located along the 440 km rail line. The geological terrain comprised outcropping granitic basement in the north through to outcropping units of the Proterozoic Hamersley Group commencing at the scarp of the Chichester range and outcropping on either side of the recent alluvium of the Fortescue river valley.

The local aquifer environment was described, including the hydraulic characteristics, recharge mechanisms and potential for groundwater dependent ecosystems (GDEs) to be present which may be impacted by the abstraction.

The abstraction rate, pumping water level, rainfall, Electrical Conductivity and pH were graphed for each individual bore. The hydrochemical analyses were compared against guideline relevant to the beneficial use of the water.

An assessment of the impact from abstractions and sustainability of supply was undertaken, and recommendations for amended usage patterns and on-going monitoring. Detailed recommendations included an assessment of source catchments and protection of the resources.



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