

James W.T. Headon B.Sc. M.Sc.
Principal Hydrogeologist
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Overview

James has more than 16 years' professional experience in the UK and Australia across the industrial, landfill, mining and environmental consultancy sectors. His broad experience extends across groundwater investigations, monitoring and compliance with a particular strength in the development of conceptual models for a range of sites and purposes extending from water resource, water supply and contaminated site assessments. He has demonstrated experience facilitating project delivery with multidisciplinary teams to meet project objectives for a range of multinational and national industry clients, WA-based companies and sector agencies.

Qualifications

2006 – 2007 Master of Science, Hydrogeology (Merit)
Leeds University, School of Geoscience, Leeds, UK.

2002 – 2006 B.Sc., Geology (2:1 Hons.)
Edinburgh University, School of Geoscience, Edinburgh, UK.

Employment History

2023

Principal Hydrogeologist, Innovative Groundwater Solutions

2022 – 2023

Team Lead/Principal, WA Land Quality and Remediation (LQR), SLR Consulting
(SLR acquired 360 Environmental in 2022)

2016 – 2022

Senior Environmental Scientist – Contaminated Site Services (CSS), 360 Environmental, Perth, WA

2011 – 2016

Project Environmental Scientist – Contaminated Site Team, AECOM, Perth, WA
(AECOM acquired URS in 2014)

2010 – 2011

Consultant – Contaminated Sites Team, Worley Parsons, Leeds, UK

2007 – 2010

Consultant – Hydrogeology and Hydrology Team Capita Symonds, East Grinstead and Sheffield, UK

Competencies

Mental Fitness Bootcamp – Mindful Leader

Project Management Training, URS

Selected Project Experience

Kwinana Power Station Groundwater Abstraction System, Synergy

Prepared H1 and H2 hydrogeological assessments to evaluate whether groundwater abstraction could be undertaken to meet future process water supply needs without resulting in adverse impacts, such as intrusion of the underlying saline wedge or uptake of groundwater contaminants impacting process water suitability. Worked with modellers to provide the model constraints/requirements and reviewed the H2 hydrogeologic model under several abstraction scenarios. Designed, implemented, and obtained regulator approval for a test bore installation and monitoring program including a short-term operating strategy. Provided on-going technical advice to the operational team from project conception through on-going implementation.

Northlink Western Australia (WA) Stage 3 (Muchea) Link Road, CPB

Prepared H2 level hydrogeological assessments for the northern section of the Northlink Road. The project required six separate assessments to determine the availability and impacts to the groundwater and local groundwater dependent ecosystems (GDEs) from groundwater abstraction during the road construction. Represented the client at regulator meetings and provided advice and support throughout the project to ensure that the local aquifer and GDEs were protected while still providing sufficient water resources for the project duration.

Dardanup Particleboard Plant, Laminex

Project manager and Principal Hydrogeologist for H1 and H2 groundwater assessments, groundwater and surface water monitoring and design of a groundwater recovery system for a urea-formaldehyde plume at the particleboard site. Groundwater investigation works consisted of slug tests, constant head tests, and implementation of a comprehensive groundwater and surface water monitoring program over multiple aquifers over multiple years and the associated interpretation of results including in relation to groundwater/surface water interaction. Commissioned a quantitative groundwater model to determine the optimal design for a recovery system along the site boundary to maximise contaminant recovery and comply with regulatory restraints regarding drawdown from the adjacent GDE and risks associated with the dewatering of acid sulfate soils.

Banksia Rd Landfill, Cleanaway

Undertook a H1 hydrogeologic assessment and prepared a conceptual hydrogeologic model to support the approvals for expansion of landfill cells. The assessment considered possible interactions between landfill leachate, the superficial aquifer, and the underlying confined Leederville aquifer (which is a declared water supply resource to the northwest of the site). Designed and implemented a long-term groundwater monitoring network and monitoring program. Project manager for the water quality monitoring program and technical lead/reviewer for the annual compliance reporting.

Jarrahdale and Bunbury Service Station, Viva Energy

Undertook hydrogeologic investigation works consisting of slug tests, constant head tests and associated interpretation of results to determine migration rates and pathways of hydrocarbon plumes associated with these service stations. Undertook and interpreted product bail down tests at sites impacted with non-aqueous phase liquids. Developed conceptual hydrogeologic models for the sites to support monitoring program design and remediation planning.

Whicher Ranges, Private O&G Client

Undertook a H1 hydrogeologic investigation to evaluate potential risks to the protected deep aquifer groundwater in association with an onshore gas exploration program. Supervised the installation of groundwater monitoring wells into the confined Yaragardee Aquifer. Developed a conceptual hydrogeologic model and groundwater monitoring program including site-specific trigger values for the rehabilitation phase of the project. Undertook regulatory compliance reporting to meet closure requirements.

Wagerup Refinery, Alcoa

Developed a conceptual hydrogeologic model of the shallow and intermediate superficial aquifer system to support the design of a groundwater recovery system to inhibit the offsite migration of alkaline groundwater impacted by operational activities. Provided the model constraints/ requirements for and reviewed the H2 hydrogeologic model to ensure suitability within the operational refinery requirements. Developed the drilling and installation specifications for recovery bore installation.

Perron Quarry, Synergy

Developed a conceptual hydrogeologic and contaminant migration model to determine the long-term risks from leachate associated with coal ash disposed within the Perron Quarry. Supported the rehabilitation team in design of the capping cover to the landfill to reduce leachate generation. Prepared and implemented the groundwater monitoring program from pre-closure through post-closure. Designed the operating strategy for the abstraction bores to balance groundwater contamination migration management with operation water requirements. Post-closure undertook a mass flux evaluation to demonstrate to regulators that risk of off-site contamination was negligible in the absence of abstraction to support site reclassification to Remediated - Restricted Use.

Capel Basalt Quarry, Mobile Concrete Solutions

Undertook a H1 hydrogeologic assessment based on site-specific and regional drilling data to develop a conceptual hydrogeologic model for a proposed basalt quarry in consideration of risks associated with drawdown on GDEs, acid sulfate soils, mineral sands tailings, and the underlying fractured rock aquifer. Provided the model constraints/requirements for and reviewed the H2 hydrogeologic modelling outputs

to provide recommendations on the quarry layout constraints under various quarrying rates. Developed an operational strategy for the dewatering system.

Shell Toothill, Grimsby, UK, Shell

A former petrol station had lost >100,000L of petrol creating a hydrocarbon and MTBE plume in the underlying aquifer that was being drawn into a public drinking water abstraction bore. The project included drilling and collection of groundwater monitoring bores into the shallow unconfined surficial aquifer and deeper drilling into the semi-confined limestone aquifer to help develop a detailed conceptual site model which led to an onsite remediation system and an offsite hydraulic capture system.

Karratha Yara Pilbara Nitrates, YPN

Project manager and technical lead for a multi-disciplinary environment programme. Managed quarterly groundwater sampling, annual sediment sampling and fortnightly surface water sampling during seasonal flow events. Provided direction and advice on the groundwater quality and a planned groundwater remediation system and works to understand the complex relationship between ground and surface water and groundwater flow patterns.

Whim Creek Copper Mine, Anax Metals

Principal hydrogeologist for the preparation of the triennial hydrogeologic aquifer review within a fractured rock aquifer system for a mine site in care and maintenance with historic releases from the process water ponds. Prepared the operating strategy for the groundwater abstraction system during site recommissioning.

Hedges Gold Mine, Alcoa

Principal hydrogeologist for the review of annual ground and surface water monitoring data and author of the annual compliance report. The report detailed the current ground and surface water quality in comparison with previous monitoring events requiring a thorough understanding of the complex multi-layer groundwater system and the interaction with the ephemeral streams in the study area.

Publications

Refereed Journal Papers

Headon, J., Banks, D. Waters, A., and Robinson, V.K., 2009, Regional Distribution of Ground Temperature in the Chalk Aquifer of London, UK. Quarterly Journal of Engineering Geology and Hydrogeology, 42, 313-325