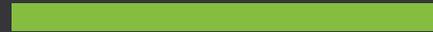




SKILLSETS

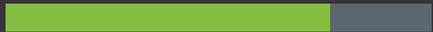
Contaminated Land and Remediation



Groundwater



Asbestos



Acid Sulfate Soil



Construction Management



Landfill Design and Waste



MARKET SECTORS



Property



Waste Management



Construction



Government



Defence



Transport & Logistics

CONTACT

Email

enquiries@epicenvironmental.com.au

Phone

1800 779 363

LUKE AMIES

Associate Environmental Scientist

Luke is a qualified Environmental Scientist, Licenced Asbestos Assessor and Certified Site Contamination Specialist with over fifteen years of experience in contaminated land and environmental consulting throughout Australia. Luke has acted as a Suitably Qualified Person (SQP) in accordance with Section 564 of the Queensland Environmental Protection Act 1994 on a wide range of soil, groundwater contamination and remediation projects.

Luke has developed and implemented remediation strategies to identify and address environmental risk at a variety of complex sites including former gas works and gold mining sites. Key investigations and subsequent remediation projects have included the assessment of soil, sediments and groundwater, groundwater and soil gas modelling, and the preparation of health risk assessments.

QUALIFICATIONS

- 2003** University of Queensland / Bachelor of Environmental Science
- 2016** WHSQ / Licenced Asbestos Assessor
- 2018** EIANZ / Certified Environmental Practitioner (CEnvP)
- 2018** EIANZ / CEnvP Site Contamination Specialist

MAJOR PROJECTS

- Linear infrastructure projects including Cross River Rail, Gold Coast Light Rails Stage 2, Moreton Bay Rail Link, Bruce Highway C2C Section C & Mackay Ring Road
- Defence and Airport sites including Gold Coast Airport Project LIFT & RAAF Amberley 5FLT Heron
- Major urban remediation sites including the West End Gasworks, Mt Taylor Gold Mine, Northshore Hamilton & Tennyson Power Station and Yeerongpilly DPI Animal Research Facility
- Marine Pre-Dredging including GLNG Western Basin Capital Dredging and Materials Offloading Facility, Scarborough Boat Harbour & Aquarium Passage

AFFILIATIONS

- Member, Environment Institute of Australia and New Zealand (EIANZ)
- Member, EIANZ Contaminated Land Special Interest Section (EIANZ CL SIS)
- Member, Australasian Land and Groundwater Association (ALGA)
- Member, Australian Contaminated Land Consultants of Australia (ACLCA)

EXPERIENCE

CONTAMINATED LAND & REMEDIATION

- **Project Manager, Cross River Rail, Brisbane, Queensland.** In accordance with the Cross River Rail Delivery Authority's (CRRDA) Cross River Rail (CRR) Contamination Strategy, a framework was required to be established for the identification and management of contaminated land during the design, construction and operational phases. Acting as the Suitably Qualified Person (SQP), Luke oversaw the implementation of a baseline contamination assessment across the entire CRR works footprint to inform the proposed design, construction and operational phases of the work. In addition, Luke oversaw the remediation and validation of the former Goprint, Land Centre and South Brisbane Dental Hospital sites which comprised the staging area and launch site for the CRR Tunnel Boring Machines (TBMs) and Roadheaders. Remediation and validation works were required to be completed to facilitate proposed construction and tunnelling works, and enable the future development of the site as the new Woolloongabba underground railway station. Remediation was completed across the majority of the site, enabling the site to be removed from the Environmental Management Register (EMR), with unremediated portions managed under a Site Management Plan (SMP).
- **Project Manager, Gold Coast Light Rail Stage 2, Southport, Queensland.** Luke was project manager and technical lead for environmental monitoring as part of the expansion of the Gold Coast Light Rail Stabling Yard. The existing stabling yard was constructed over a portion of the former Baratta Street landfill, and as part of the proposed expansion works, CPB were required to confirm that construction works did not worsen the contamination status of the construction site or the off-site contamination risk arising from the construction site. As part of site works, Luke oversaw the installation of addition groundwater and landfill gas monitoring infrastructure to establish baseline conditions at the site and provide a benchmark against which conditions can be monitored, before developing robust methodology to ensure earthworks processes were carried out whilst posing minimal risk to human, or environmental health. Regular monitoring of groundwater and landfill gas was undertaken during, and following the construction program to ensure that site works were not impacting on the landfill cell and the surrounding environment.
- **Technical Lead, Lion Due Diligence Investigations, Queensland, New South Wales, Victoria and Tasmania.** Luke was the technical lead and Certified Contaminated Land Specialist for the completion of due diligence assessments at several existing Lion dairy and drinks manufacturing sites throughout Australia. Luke oversaw the assessment of each to facilitate to establish the nature and extent of any contamination and inform Lion of potential environmental liabilities for each site.
- **Project Manager, Technical Lead and Licenced Asbestos Assessor, Kingfisher Bay Resort Group, Queensland.** Luke was the project manager, technical lead and licenced asbestos assessor for the completion of a pre-purchase environmental and hazardous materials assessment on a number of properties including the Kingfisher Bay Resort, Eurong Village Resort and a number of mainland properties located throughout Queensland. Works were completed to inform the potential purchaser (Sealink) of any associated environmental risks associated with the purchase of the properties. Following completion of the scope, and a successful negotiation and transaction, Epic was retained by SeaLink to undertake further human health and environmental risk assessment of a number of items identified during the initial site inspection.
- **Project Manager, RAAF Amberley 5FLT Heron, Amberley, Queensland.** Luke was Project Manager and lead assessor for site investigation works associated with construction of additional aircraft shelters and a training simulator as part of the RAAF Base Amberley's transition from F-11 to F/A-18F Super Hornets. Luke undertook a soil sampling and characterisation program to assess potentially contaminated areas within the construction footprint and determine management requirements to be implemented at the site.
- **Project Manager, Brunswick Heads Sewage Treatment Plant, Brunswick Heads, New South Wales.** Luke was Project Manager and lead assessor for environmental assessments as part of the decommissioning of the Brunswick Heads Sewage Treatment Plant (STP). Soil, groundwater and sediment investigations were undertaken to assess the site to assess potential risks to human health and the environment and determine the suitability of the site for public recreation and open space land uses. Results from site investigations were used to inform the preparation of a Remediation Action Plan (RAP) to provide a framework for remediation and management works required as part of decommissioning of the site.
- **Project Manager, Austins Ferry Gunns Timber Mill, Austins Ferry, Tasmania.** Luke was Project Manager and lead assessor for an environmental assessment of the former Austins Ferry Gunns timber mill site. Through completion of a detailed site history review, Luke was able to design a comprehensive investigation program to target several areas of concern associated with former site activities. Implementation of the investigation

program identified a number of areas across the site requiring remediation, including a number of areas that were able to be successfully remediated as part of the initial investigation scope. All works were completed in accordance with local guidelines, regulations and planning schemes to ensure that at the completion of works, the site was suitable for its proposed land use.

- **Project Manager, St Leonards Gunns Timber Mill, Waverley, Tasmania.** Luke was Project Manager and lead assessor for an environmental assessment of the former St Leonards Gunns timber mill site. Review of site history information identified a number of areas of concern including former inground CCA chemical tanks, fuel storage areas and areas of uncontrolled landfilling. Investigations also identified the presence of asbestos material, used as concrete reinforcing chairs, embedded within concrete slabs across the site. Luke is currently overseeing the implementation of a remediation and management strategy for the remediation of contaminated land and management of asbestos impacts concrete materials as part of site demolition and decommissioning works.
- **Project Manager, Ipswich City Council Closed Landfill Risk Assessment, Ipswich, Queensland.** Luke undertook a risk assessment at ten closed landfill sites throughout the Ipswich region. The sites were known or suspected to have been subjected to controlled and uncontrolled landfilling operations over the past 60 years. Works included the completion of a detailed site history review of each of the ten sites, along with groundwater, landfill gas and intrusive investigations. The results of site history and intrusive works were used to provide ICC with a comprehensive Risk Analysis that identified the severity, and likelihood of harm caused through historic landfilling activities, the risks to human health posed by landfill gas presence and/or emissions resulting from landfilling operations and remaining waste material and a detailed breakdown of the impacts on groundwater, and surrounding environment resulting from the presence of historic landfill waste. Based on the findings of the Risk Analysis, site specific mitigation measures along with monitoring regimes were recommended in order to minimise impact and ensure the safe and effective management of the 10 sites.
- **Project Manager, Telegraph Road Stage 1B, Fitzgibbon, Queensland.** Widening of the existing road corridor as part of the Telegraph Road Stage 1B works, encroached on a historic landfill, requiring management of contaminated land and landfill risks including landfill gas and leachate. Luke performed the role of suitably qualified person and oversaw the management of leachate, installation of a leachate collection system and contaminated land.
- **Project Manager, Telegraph Road Stage 2, Fitzgibbon, Queensland.** Telegraph Road Stage 2 works involved the dewatering and excavation of a former landfill area to facilitate the construction of a new single span road bridge over Cabbage Tree Creek. Luke performed the role of a suitably qualified person and licenced asbestos assessor with key tasks including preparation of dewatering, acid sulfate soils and asbestos management plans for approval by BCC and the contaminated land auditor, completion of baseline surface water and groundwater monitoring, supervision of dewatering works, including construction monitoring of groundwater, surface water and airborne asbestos fibres, acid sulfate soils and excavation and removal of contaminated soil and waste materials.
- **Project Manager, Ripley Town Centre Livestock Dip Remediation, Ripley, Queensland.** Luke project managed the investigation, remediation and validation of a former livestock dip located within the construction footprint of the Ripley Town Centre development. Remediation and validation works were completed in accordance with regulatory requirements, and the satisfaction of the Contaminated Land Auditor enabling the site to be removed from EHP's Environmental Management Register. Works were completed in a timely and efficient manner, facilitating development of Stage 1 of the Ripley Town Centre.

GROUNDWATER

- **Project Manager, Gold Coast Airport Project LIFT, Coolangatta, Queensland.** Luke project managed the implantation of an environmental monitoring program at the Gold Coast Airport to satisfy the requirements of the approved Construction Environmental Management Plan (CEMP) as part of the civil works package of the Gold Coast Airports' project "Let's Invest for Tomorrow (LIFT)". Historical activities within the airport site had resulted in contamination of the shallow groundwater beneath the site with petroleum hydrocarbons and Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) (including perfluoro octane sulfonate (PFOS) and perfluorooctanoic acid (PFOA)) which required monitoring and management as part of dewatering work associated with the relocation of the perimeter drain and other inground works. Works completed included baseline sampling to establish existing site conditions, the completion of fortnightly groundwater and surface

water monitoring over an 18-month period. Works also comprise daily inspections and site monitoring during dewatering works, completion of environmental management requirements in accordance with the CEMP and dewatering, contaminated land and acid sulfate soils management sub-plans and establishment appropriate controls to manage environmental and human health risks associated with the presence of PFAS and other identified contaminants at the site, to ensure the safe completion of the proposed civil construction works.

- **Project Manager, Groundwater and Surface Water Assessment and Management, Former Landfill, Queensland.** Luke is currently project managing the investigation of ammonia impacted groundwater at a former landfill site. Works are required to be completed to assess potential offsite impacts to sensitive receptors and determine appropriate remedial actions required. The program to date has included the installation of groundwater monitoring wells in difficult ground conditions, completion of a number of groundwater monitoring event and preliminary groundwater modelling to assess potential risk and determine additional works required to be completed.
- **Diesel Spill, Queensland.** Luke is currently project managing investigations and remediation works following a diesel spill resulting in the loss of approximately 80,000L of diesel product to ground. Works have included the completion of several groundwater monitoring events (GMEs), with a total fluids extraction remediation system currently being installed at the site.
- **Project Manager, Hydrogeological Assessment – Coorparoo Creek Park, Coorparoo, Queensland.** Luke project managed a hydrogeological assessment of the proposed Coorparoo Creek Park development to assess potential impacts from acid sulfate soils and contamination previously identified at the site. The assessment comprised field investigations and three-dimensional computer modelling of groundwater flow and contaminant migration to determine potential impacts from alterations to existing groundwater flow patterns and lowering of groundwater levels as a result of the proposed development.
- **Project Manager, Crude Oil Pipeline Spill Remediation, Western Queensland.** Luke project managed the operation and maintenance of a groundwater remediation system follow a crude oil pipeline spill in Western Queensland. The system comprised a network of groundwater monitoring wells installed with passive product skimmers extracting phase separated hydrocarbons (PSE) from the aquifer below. As part of ongoing monitoring of the site, quarterly groundwater monitoring events (GMEs) were completed within the vicinity of the spill along with a wider network of groundwater monitoring wells to assess the extent of dissolved phase hydrocarbons enabling assessment of the effectiveness of the remediation system and determination of potential offsite risks to nearby sensitive receptors. During an operational period of two and a half years, regular maintenance of the system along with completion of a five-day Multi-Phase Extraction (MPE) event lead to a significant reduction in PSE.

PERFLUOROALKYL & POLYFLUROALKYL SUBSTANCES (PFAS)

- **Project Manager, Gold Coast Airport Project LIFT, Coolangatta, Queensland.** Luke project managed the implantation of an environmental monitoring program at the Gold Coast Airport to satisfy the requirements of the approved Construction Environmental Management Plan (CEMP) as part of the civil works package of the Gold Coast Airports' project "Let's Invest for Tomorrow (LIFT)". Historical activities within the airport site had resulted in contamination of the shallow groundwater beneath the site with petroleum hydrocarbons and Perfluoroalkyl and Polyfluroalkyl Substances (PFAS) (including perfluoro octane sulfonate (PFOS) and perfluorooctanoic acid (PFOA)) which required monitoring and management as part of dewatering work associated with the relocation of the perimeter drain and other inground works. Works completed included baseline sampling to establish existing site conditions, the completion of fortnightly groundwater and surface water monitoring over an 18-month period. Works also comprise daily inspections and site monitoring during dewatering works, completion of environmental management requirements in accordance with the CEMP and dewatering, contaminated land and acid sulfate soils management sub-plans and establishment appropriate controls to manage environmental and human health risks associated with the presence of PFAS and other identified contaminants at the site, to ensure the safe completion of the proposed civil construction works.
- **Project Manager, PFAS Risk Assessment Brunswick Heads Sewage Treatment Plant, Brunswick Heads, New South Wales.** Luke was Project Manager and lead assessor for environmental assessments as part of the decommissioning of the Brunswick Heads Sewage Treatment Plant (STP), including completion of a desktop review and limited environmental risk assessment to determine potential risks associated with PFAS at the

Brunswick Heads Sewage Treatment Plant. Findings of the risk assessment were utilised to inform soils, sediment, surface water and groundwater sampling at the site.

- **Project Manager, Voluntary Preliminary PFAS Environmental Investigations, Queensland Energy Company, Queensland.** Luke is currently overseeing the completion of a voluntary Preliminary PFAS Environmental Investigations at two Queensland power generation sites to assess potential impacts associated with historical use of aqueous film-forming foams (AFFF). Works include the completion of a detailed desktop review, site audit and inspection and completion of an environmental risk assessment to determine potential risks associated with PFAS. Findings of the desktop review and risk assessment will be utilised to prepare a conceptual site model (CSM) for each site, and inform the proposed soils, sediment, surface water and groundwater sampling at the site, with monitoring works to be completed at the site in early 2020.
- **Project Manager, Department of Defence Site, Amberley Queensland.** Luke project managed the implantation of a soil characterisation program as part of infrastructure upgrades at a Department of Defence site. Luke worked closely with Fulton Hogan's Environmental Supervisor to develop and implement a soil sampling and characterisation program in accordance with procedures and requirements of State and Commonwealth Guidelines. Results of the soil sampling and characterisation program were used to prepare an Environmental Clearance Certificate (ECC) to manage proposed works and potential environmental impacts identified during the investigation works.
- **Technical Advisor, CR2SM PFAS Remediation, Caloundra, Queensland.** Luke oversaw the remediation design and construction management of known PFAS contamination within the construction footprint of the Bruce Highway CR2SM project. Working closely with the Department of Main Roads and the construction team, a remediation plan was developed and implemented to manage and reduce any cross-contamination risk associated with the civil works of the project.
- **Technical Advisor, NSW Rural Fire Service - PFAS Investigation, Albury, New South Wales.** Luke oversaw the completion of a detailed site assessment at the Lavington Rural Fire Service Station. The Site was adjacent to vacant land which was historically used for firefighting training activities, and a site investigation was required to assess the potential for PFAS contamination of soil, groundwater and surface water at the site. Works included intrusive investigations at the site, along with a number of regional sites to assess the nature and extent of potential PFAS impacts associated with historical activities undertaken at the site.

ASBESTOS

- **Project Manager, Asbestos Remediation and Validation, Eagle Farm, Queensland.** Luke project managed remediation and validation works comprising the excavation and offsite disposal of over 125,000t of asbestos contaminated soil. As part of remediation and validation works, Luke undertook clearance inspections and oversaw and assisted with works completed by the Licenced Asbestos Assessor (LAA) including asbestos air monitoring and clearance inspections. Luke also established and monitored protocols to ensure the safety of site workers and the general public during the remediation, validation and bulk earthworks phases of the project while ensuring management of remediation works was undertaken in accordance with State and Commonwealth Guidelines.
- **Technical Advisor, Asbestos Remediation and Validation, Curtis Island, Queensland.** Luke was engaged as a technical advisor for the remediation of asbestos impacted mulch from an industrial site. Luke undertook an independent program of visual inspections across areas of the site suspected to have been impacted, sampling of soils and imported mulch materials and an asbestos air monitoring program to establish baseline conditions at the site. Luke subsequently acted as an independent third-party reviewer and technical advisor for the principal contractor during remediation and validation works, which comprised review of remediation and validation documentation (including asbestos management and control plans and work procedures) and supervision of asbestos removal and validation works.
- **Project Manager, Asbestos Remediation and Validation, Banyo Rail Stabling Yard, Queensland.** Luke project managed and undertook investigation works to characterise spoil material requiring off-site removal as part of development of the Banyo Rail Stabling Yard. Working with the LAA, Luke developed an environmental assessment program for the site to assess potential risks to human health and the environment and determine the extent of soil contamination and asbestos impacts within the existing rail formation.
- **Project Manager, Asbestos Remediation and Validation, Former Banyo Defence Facility, Brisbane.** Luke project managed and undertook supervision of remediation and validation works at the former Banyo Defence Facility.

Remediation works comprised the excavation and removal of asbestos impacted soils over an approximate 20,000m² area, with visual inspection and validation sampling undertaken following completion of remediation works.

- **Project Manager and Technical Lead, Asbestos Remediation and Validation, Former Army Depot, Fortitude Valley, Queensland.** Luke project managed and undertook supervision of remediation and validation works at a former Army Depot in Fortitude Valley QLD. Remediation works comprised the excavation and removal of contaminated soils and asbestos impacts, with visual inspection and validation sampling undertaken following completion of remediation works.
- **Project Manager, Asbestos Remediation and Validation, High-rise Residential Development, Fortitude Valley, Queensland.** Luke project managed and undertook supervision of remediation and validation works following the identification of asbestos impacted fill material at a high-rise residential development in Fortitude Valley QLD. Remediation works comprised the excavation and removal of contaminated soils and asbestos impacts, with visual inspection and validation sampling undertaken following completion of remediation works.
- **Site Supervisor, Asbestos Remediation and Validation, Former Telstra Training Facility, Chermside, Queensland.** Luke was the site supervisor and environmental consultant for the remediation of the former Banfield Street Telstra Training Facility. Remediation and validation works comprised the systematic removal and subsequent validation of in ground asbestos infrastructure previously used for training purposes. Luke supervised remediation works to assist in the identification of unmapped underground infrastructure, undertook validation sample collection and visual clearance while assisting in the implementation of the asbestos air monitoring program.
- **Site Supervisor, Asbestos Remediation and Validation, Australian Catholic University, Mitchelton, Queensland.** Luke was the site supervisor and environmental consultant for the remediation of asbestos impacted soils at the former Australian Catholic University Mitchelton campus. Luke supervised remediation works and undertook validation sample collection and visual clearance of remediated areas.

ACID SULFATE SOILS

- **Project Manager, Sideling Creek Dam Upgrade (Lake Kurwongbah), Kurwongbah, Queensland.** Management of ASS impacts were required as part of the proposed upgrade of the Sideling Creek Dam abutment. Luke was the project manager and technical lead for additional investigation works and development of an acid sulfate soils management plan (ASSMP) to manage impacts from ASS identified at the site. Investigation works were completed in challenging ground conditions, comprising areas within the existing Sideling Creek alignment, with the ASSMP enabling work to proceed whilst ensuring the protection of the surrounding sensitive environment (headwaters of Sideling Creek and the wider Pine Rivers Catchment).
- **Project Manager, Acid Sulfate Soil Investigation, Curtis Island, Queensland.** Luke project managed an acid sulfate soils investigation within the proposed 190ha onshore footprint of the GLNG facility located in China Bay, Curtis Island. Results from investigations were used to assess potential impacts of proposed construction works and develop management procedures to mitigate potential on-site and off-site environmental impacts. In addition, environmental and ASS investigations were undertaken at the proposed Materials Offloading Facility (MOF) located on the southern end of China Bay, Curtis Island. As part of the scope of work, Luke worked closely with the client and the dredging contractor to develop an ASSMP to control potential acid generation during dredge operations and manage potential on-site and off-site environmental impacts.
- **Project Manager, Western Basin Dredging Operations, Gladstone, Queensland.** Luke was Project Manager and lead assessor of an environmental and acid sulfate soils investigation as part of capital dredging works within the Western Basin of Gladstone Harbour as well as Gladstone Liquefied Natural Gas Facility Materials Offloading Facility. Luke prepared and implemented an environmental investigation program to determine the suitability of dredge materials for offshore disposal at the approved East Banks Sea Disposal Site.
- **Third Party Auditing of Acid Sulfate Soils Management Plans, Gladstone Queensland.** Luke completed third party auditing and advisory services for completion of the Wiggins Island Coal Export Terminal (WICET) and Western Basin Reclamation Area (WBRA) projects located in Gladstone QLD. Auditing included the assessment for compliance or otherwise of the earthworks and/or dredging contractor(s) against provisions set out in the EHP approved ASSMPs as part of the construction phase of these projects.

- **Project Manager, Woongoolba Flood Mitigation Scheme, Woongoolba Queensland.** Luke project managed acid sulfate soils investigations as part of the Woongoolba Flood Mitigation Scheme. Investigation works were completed within existing drainage channels and flow paths to assess acid sulfate soil impacts associated with proposed widening and repair works across a network of existing surface water channels. Works were successfully completed in challenging ground conditions, with the majority of works completed within existing drainage channels and low-lying areas adjacent to sugarcane fields.
- **Site Supervisor, Greenheart Urban Parkland, Robina Queensland.** Luke undertook investigations within low-lying floodplains of Mudgeeraba Creek associated with the proposed Greenheart urban parkland development. In order to assess potential impacts associated with changes to groundwater flow regimes, and potential migration of acid generated during development works, a network of groundwater monitoring wells were installed across the site and groundwater modelling completed. Results were used to inform the proposed development to minimise impacts associated with acid sulfate soils and establish adequate management procedures to be implemented during works.

RADIOLOGICAL

- **Third Party Review and Technical Advisor, Mineral Sands Remediation, New South Wales.** Luke was engaged as a technical advisor and independent third party reviewer by the NSW government for a mineral sands remediation project in northern NSW. Acting on behalf of the state government, Luke undertook technical review and provided technical advice with regards to the management and remediation of radiological impacts at a sensitive site. Through completion of an independent review, an alternate remediation and management strategy was able to be proposed which resulted in significant cost savings for the project whilst ensuring the safety of site users and the wider community was maintained.
- **Technical Advisor & SQP, Numerous Mining Leases and Special Lease Sites, North Stradbroke Island (Minjerribah), Queensland.** Luke is currently acting as a technical advisor and Suitably Qualified Person (SQP) for the investigation and remediation of numerous mining and non-mining lease sites across North Stradbroke Island (Minjerribah). Mining activities and filling works have resulted in elevated levels of naturally occurring radioactive material (NORM) and technologically enhanced naturally occurring radioactive material (TENORM) across multiples areas covered by mining leases across the Island. As part of the surrender process of these mining leases, investigation and, if required, remediation of these sites is required. To date, investigation works have included site walkovers with hand-held radiation meters, intrusive investigation and sampling, deployment of passive samplers (optically stimulated luminescence (OSL) monitors) and sampling for radon and thoron. Remediation works have included re-processing remaining materials to reduce radiation levels and management and containment of material with elevated radiation levels.

POSITION SUMMARY

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|------------------|-----------------------------------|-----------------------------------|
| ● 2017 – Present | Associate Environmental Scientist | Epic Environmental Pty Ltd |
| ● 2015 – 2017 | Senior Environmental Scientist | Epic Environmental Pty Ltd |
| ● 2009 – 2015 | Associate Environmental Scientist | Butler Partners |
| ● 2007 – 2009 | Senior Environmental Scientist | Butler Partners |
| ● 2004 - 2007 | Environmental Scientist | Butler Partners |