RESUMÉ

Professional Qualifications

Certified Environmental Practitioner (Site Contamination Specialist) 2017 - Present

Education

BSc, Southern Methodist University, 2008
MSc (Hons), Southern Methodist University, 2009
Thesis Emphasis: Modelling Emerging Contaminants in Water and Wastewater Treatment Plants

Professional Affiliations

EIANZ – Member since 2015
ALGA – Member since 2015

Technical Skills

Contaminated Land Assessment
Contaminated Land Remediation
Groundwater Remediation
In Situ Chemical Oxidation / Reduction
Bioremediation
Environmental Due Diligence
Environmental Management

Managerial Skills

Project Management to $150K

Work History

Separate Phase Ltd, Christchurch Environmental Consultant (2017)

Opus International Consultants, Christchurch – Contaminated Land Consultant (2015 to 2017)

URS Corporation, Atlanta, Georgia, USA – Environmental Engineer and Certified Project Manager (2009 to 2014)

TXU Energy, Dallas, Texas, USA Environmental Specialist (2006 to 2007)

REAGAN KNAPP
Certified Environmental Practitioner – Site Contamination Specialist

HAIL Environmental Limited
Contaminated Site Specialist

Reagan Knapp has over ten years' experience in the environmental field in New Zealand and the USA. She specialises in the co-ordination and management of environmental site assessments relating to the discharge of contaminants to land and groundwater. She is skilled in providing advice to clients for contaminated sites in Canterbury, nationally in New Zealand and within the USA. Her experience includes groundwater and land investigations, remediation of contaminated sites, project management, design and implementation of diverse remediation technologies, mixed-media sampling and logging, drilling oversight, due-diligence, compliance, and a broad-spectrum of other environmental and large-scale demolition project experience.

Selected Project Experience - Contaminated Land (New Zealand)

BP Balclutha Service Station Redevelopment:
Completion of the Preliminary Site Investigation (PSI), Detailed Site Investigation (DSI) and preparation of an Environmental Management Plan (EMP) to enable the proposed redevelopment of several retail buildings into a service station. Test pit excavations encountered low-level contaminants in uncontrolled fill and soil on site which were deemed suitable to remain on site based on Commercial/Industrial use standards. Confidential client, 2017.

BP Mosgiel Service Station Redevelopment:
Completion of a DSI and EMP for redevelopment of a service station in Mosgiel that had operated as a service station and a motor vehicles garage since at least 1979 with several petroleum storage and handling layouts. The objectives were to identify potential contaminant sources in soil and groundwater, to identify the shallow geology in the proposed tank and shop locations, and to identify any constraints that could occur during redevelopment. The DSI was performed in conjunction with a geotechnical investigation to inform foundation design. BP Oil NZ Ltd, 2017.

BP Russley Service Station Construction Monitoring and Reporting:
Update of an Environmental Management and Monitoring Plan (EMMP) for construction of a new service station near the Christchurch Airport following issue of consent for earthworks. Monitoring of consent conditions and completion of the required groundwater sampling programme enabled completion of a post-construction environmental compliance report. BP Oil NZ Ltd, 2017.

Horotane Valley Road, Christchurch, Detailed Site Investigation:
Completion of a DSI to enable the proposed construction of a residential dwelling located on a property with historical horticultural and use. Soil samples identified that with appropriate management and from a soil quality perspective, the area investigated is suitable for continued use as a rural/residential lifestyle block. Confidential Client, 2017.

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Christchurch CBD New Central Library - Enabling Works:
Completion of a multi-phase, grid-based DSI involving sampling of asbestos-contaminated demolition fill prior to construction of the new Central Library building in the Christchurch CBD. DSI activities included windowless soil sampling for a range of contaminants of concern and reporting results which facilitated consenting considerations and disposal options. A Remedial Action Plan was completed based on the findings of the DSI. Subsequent SQEP monitoring of asbestos material and contaminated soil removal was performed, and validation sampling of remaining soil beneath the contaminated fill was conducted during excavation. An Asbestos Clearance Certificate and Site Validation Report were prepared prior to commencement of construction. Christchurch City Council, 2015 - 2016.

Western Belfast Bypass Sawmill Reconfiguration - Environmental Monitoring:
Environmental (soil, groundwater, surface water and sediment) sampling and monitoring in accordance with consent conditions, Suitably Qualified and Experienced Practitioner (SQEP) monitoring, and compliance reporting. 2015 - 2017.Dudley Creek Flood Remediation - Soil and Sediment Sampling, Excavation & Disposal:
Implementation of a soil and sediment sampling programme prior to and during earthworks involved in recontouring the banks of the creek and associated tributaries to aid in flood prevention. Asbestos-contaminated fill was encountered in limited sections and was appropriately managed during contouring works. Christchurch City Council, 2016 - 2017.

Subdivision of Former Quarry and Landfill in Mosgiel - Detailed Site Investigation:
Completion of a DSI in parallel with a geotechnical appraisal for an individual proposing to subdivide, change the land use to rural/residential and construct a dwelling. Historically, the site was quarried for raw material for the former local brickworks and was subsequently landfilled with combined household and commercial waste. Test pit excavations revealed a variety of fill material and soil samples included contaminants above the applicable NES standards, which informed recommendations regarding resource consenting, fill and soil management and disposal options, and geotechnical considerations. Confidential Client, 2016.

Greymouth Hospital Proposed Outpatients Building - Enabling Works:
Task manager and project engineer for completion of a DSI prior to commencement of construction of the new Greymouth Hospital Outpatients building. Based on a previously completed PSI, windowless soil sampling was performed within the footprint targeted for construction of the new buildings which identified fill material and contaminants above Class A landfill criteria in select locations. Recommendations were made in regards to implications of the NES, handling and disposal of excess spoil including one area where asbestos was identified, and management of earthworks. Ministry of Health, 2015.

KiwiRail Middleton Yard - Detailed Site Investigation:
Task manager and project engineer for completion of a DSI to enable construction of two new locomotive wash facilities and reconfiguration of the rail lines. DSI consisted of the excavation of test pits, soil sampling and associated reporting in preparation for earthworks prior to construction. KiwiRail, 2015.

Proposed Early Learning Centre, Christchurch - Preliminary and Detailed Site Investigation:
Preparation of a PSI and DSI for a site proposed for a new Early Learning Centre in eastern Christchurch. The investigation was conducted in order to determine the contaminated land management and consent requirements associated with earthworks for construction based on the likely presence and extent of contamination within the material that would be disturbed during the development of the site. The presence of fill material including metal offcuts in excavated test pits confirmed the former use of the site as a landfill. Recommendations were made in regards to implications of the NES and consenting requirements, geotechnical and archaeological considerations, disposal of excess spoil, and dewatering. Kids First Kindergartens, 2015.

Timaru Port - Preliminary and Detailed Site Investigation:
Completion of a PSI and DSI within an area of the Timaru Port scheduled for trenching and installation of a new water main. Soil and roading pavement were sampled based on findings of the PSI which identified six Hazardous Activities and Industries List (HAIL) sites adjacent to and along the streets involved in the water main upgrade. DSI report included recommendations on disposal of excess soil and roading material, selection of pipework material, and a contamination discovery protocol. Timaru District Council, 2017.

Oceanview Heights School - Removal of an Underground Storage Tank:
Oversight of the removal of an underground diesel tank followed by excavation of hydrocarbon-impacted bedding material and soil, and confirmation soil sampling. Natural soil sample analytical results from samples collected following excavation indicated hydrocarbon concentrations below the laboratory detection limits and applicable standards. The tank pit was backfilled with AP65 and compacted at appropriate depths. No other works were considered necessary. Rooney Earthmoving Ltd, 2015.

Milford Aerodrome - Preliminary Site Investigation:
Completion of a Preliminary Site Investigation addressing potential contamination in the location of proposed trenches and helipads. Ministry of Transport, 2015.

Selected Project Experience - Contaminated Land (USA)

Pilot Test Scale and Full-Scale Remediation Events for Chlorinated Solvents Plume in Georgia, USA:
Project engineer for advanced pilot test implementation for an in situ chemical reduction and bioremediation alternative for a chlorinated solvent plume (PCE, TCE, DCE, DCA, VC) located adjacent to an active manufacturing facility and commercial business area. Selected technologies for the field-scale pilot testing included pneumatic fracturing and direct injection for the emplacement of EHC® (zero-valent iron and carbon substrate). Following pilot-scale evaluation, the full-scale remediation event involved the conditioning of a low pH/high ORP aquifer into an anaerobic environment to remediate the chlorinated solvents plume in groundwater ($1.75M). Full-Scale biostimulation and bioaugmentation office-based activities included: scaling-up pilot-test design specifications; calculating and configuring design elements; using AutoCAD to assist in the design; preparing requests for proposals, work plans, technical memorandums, health and safety plans, AutoCAD figures, the field activities report, and analysis of performance monitoring data; selection and communication/ coordination of subcontractors; and cost estimating. Field manager responsibilities included: coordinating, conducting and providing oversight for field activities for the full-scale injection of EHC® via direct push drilling, and preparing/injecting emulsified vegetable oil, liquid buffer, and sodium lactate via permanent injection wells, preparation and subsequent of anaerobic water with microbial culture injection; collection and interpretation of magnetic susceptibility readings from confirmation soil boring cores to analyse the vertical and horizontal distribution of EHC in the subsurface; and daily client interaction and communication. Following aquifer conditioning to neutral pH and an adequately reducing geochemical state, the full-scale implementation was completed with bioremediation of 38 injection wells followed by groundwater performance monitoring. Performance monitoring included semi-annual groundwater sampling with passive diffusive bags agreed to by the Georgia regulators. Performance monitoring results several years following completion of the full-scale event showed decreasing parent compounds, a stable anaerobic environment, and increasing concentrations of degradation products. GE Energy, 2010 - 2014. Presented at the ALGA Contaminated Land Conference 2015.

Univar Augusta Groundwater Remediation, Georgia, USA:
Project engineer and co-project manager for the site which had a groundwater extraction/ amendment/ reinjection system in place for remediation of a chlorinated solvents plume. When retained by the client, it was identified that proper site characterisation had not been performed to date. Efforts were made to further delineate the chlorinated solvents plume, including discrete soil and groundwater sampling. Responsibilities included managing the project with a Senior Project Manager, including day-to-day client interactions, managing and coordinating quarterly groundwater sampling events, writing and submitting semi-annual reports, interpreting soil and groundwater sample results, and delegating tasks to junior staff. 2013 - 2014.

Discovery, Investigation and Response Program Plan (DIRPP), US Department of Agriculture Forest Service Various Cattle Dip Vat Sites, USA:
Prepared, edited and updated the DIRPP document for Cattle Dip Vat Sites across the United States where arsenic and pesticide contamination was present in soil and/or groundwater. Templates prepared include an Introductory Fact Sheet, Sampling and Analysis Plan, Health and Safety Plan, Quality Assurance Project Plan, Engineering Estimate/Cost Analysis, and Approval Memorandum. Kentucky and Tennessee, USA. 2013 - 2014.

Ten Rock Creek Mine Sites, US Department of Agriculture Forest Service, Daniel Boone Forest, USA:
Project involved ten Rock Creek Mine sites in Kentucky that are affected by acid mine drainage (AMD). In order to ultimately prepare an Engineering Estimate / Cost Analysis (EE/CA), tasks included: conducting site visits of the AMD-impacted sites; preparing the Sampling and Analysis Plan for USFS to collect soil, sediment, groundwater and surface water data; compiling and analysing the data; selecting applicable and relevant technologies for each site, and preparation of the EE/CA for submittal to the USFS. Kentucky, 2013 - 2014.

Full-Scale In Situ Chemical Oxidation Activities, Kidde Facility, North Carolina, USA:
Project engineer and task manager assisting in the design, preparation and implementation of full-scale remediation activities to address a chlorinated solvents plume in groundwater. Office responsibilities included: calculating and configuring design elements; preparing the Underground Injection Control permit application requests for proposals, pre-construction reporting, technical memorandums, selection and communication/ coordination of subcontractors; cost estimating; ongoing groundwater monitoring and reporting. Field responsibilities included: coordinating, conducting and providing oversight for field activities, including persulfate and ABC+ injections. Wilson, North Carolina, 2012 - 2014.

Field-Scale In Situ Chemical Oxidation Remediation Activities, GDOT Former Maintenance Facility, Georgia, USA :
Project engineer responsible for conducting and providing oversight for a field-scale pilot test using Modified Fenton's Reagent technology to address naphthalene and benzene plumes at the site. Activities included: request for proposal preparation; subcontractor selection; communication with subcontractors; field oversight; groundwater geochemical monitoring during field activities; coordination of performance monitoring team; and, preparation of project deliverables. Additional site delineation and soil excavation were performed to address an encounter with DNAPL near the pilot test area. The full-scale design was in progress as of the 4th quarter of 2014. 2011 - 2014.

In Situ Chemical Reduction Pilot-Test Activities (Phase I) and In Situ Chemical Oxidation Bench-Scale and Field-Scale Pilot Test Activities (Phase II), Former C&D Technologies, Georgia, USA:
Project engineer and task manager responsible for designing and providing oversight for a field-scale (Phase I) pilot test using various ISCR amendments to address a TCE plume in groundwater in fractured bedrock. Activities included: interpretation and application of design parameters; requests for proposals and selection of subcontractors; cost estimating; coordination of vendors and subcontractors; field oversight of pilot test activities; coordination of performance monitoring team; and preparation of technical memorandums and the field activities report. Following completion of the pilot tests, activities included: ongoing groundwater monitoring; and, development of a Phase II bench-scale ISCO study, followed by a Phase II field-scale pilot test in the source zone. Conyers, Georgia, 2011 - 2014.

In Situ Chemical Oxidation Program, Former Tenneco Gasoline Station, Georgia, USA:
Design engineer and field manager responsible for implementation of a three-phase ISCO program to determine the effectiveness of ISCO utilizing Modified Fenton's Reagent to address a highly–concentrated benzene plume at the site. Responsibilities included: reviewing and comparing applicable technologies; technology selection; preparation of the work plan and requests for proposals from injection subcontractors; cost estimating; AutoCAD figures; and, field oversight and preparation of the field activities report. While the ISCO program was effective, LNAPL and elevated benzene concentrations still existed on the site as of 2013. A 96-hour MMPE event was performed in December 2013. On-going groundwater monitoring was conducted at the site while additional remediation alternatives are considered. Mableton, Georgia, 2011 - 2014.

In Situ Chemical Oxidation Field-Scale Pilot Study, Hunters Point Power Plant, California, USA:
Project engineer and task manager for a three-phase, field-scale pilot test using Modified Fenton's Reagent technology to address a total petroleum hydrocarbon (TPH) plume at the site. Responsibilities included: communication with subcontractors; field oversight; groundwater monitoring during field activities; and, preparation of the field activities report and other project deliverables. San Francisco, California, 2011 - 2012.

In Situ Chemical Oxidation Pilot Study, Former Tenneco Gasoline Station, Georgia, USA:
Project engineer and task manager for a field-scale pilot test using activated persulfate in two areas around the current building to address a benzene plume at the site. Responsibilities included: logistics of equipment, amendment delivery and collection of field data for injection of the oxidant; coordination of subcontractors and vendors; oversight of field activities; post-ISCO performance monitoring of select wells; and, preparation of the field activities report. Atlanta, Georgia, 2011.

Relevant Experience – Due-Diligence

Phase II Various Environmental Site Assessments, Southeast US:
Project engineer responsible for performing soil and groundwater sampling and drilling oversight for Phase II Environmental Site Assessments. Activities include: coordination with drilling subcontractors and analytical laboratories; oversight of sampling activities; collection of field data; tabulation and interpretation of analytical data; and, preparation of project deliverables. Various clients and sites through the South-eastern USA, 2010 - 2014.

Phase I Various Environmental Site Assessments, Across the USA:
Project engineer responsible for conducting desktop environmental investigations for clients intending to purchase commercial properties. Various clients and sites throughout USA, 2010 - 2014.

Relevant Experience – Groundwater Modelling

Groundwater Fate and Transport Modelling, Former Coastal Mart Service Station, North Carolina, USA:
Project engineer and task manager responsible for designing, preparing and developing a model to evaluate the fate and transport of dissolved benzene plume migration towards a creek in North Carolina, USA. The main objective was to evaluate the potential for reclassification of the Site from Intermediate to Low Risk. Prepared a report which provides the conceptual model of the Site, the modelling approach, the numerical groundwater model set up and calibration, and predicted groundwater conditions over time. Responsibilities included: researching background data and collecting additional data; calculating and configuring design elements; preparing the model findings report; and, cost estimating. Results secured the reclassification of the Site from Intermediate to Low Risk. El Paso Liquidating Trust, Thomasville, North Carolina, 2012 - 2014.

Relevant Experience – Compliance

Pollution Prevention and Compliance, US Postal Service, Across the USA:
Project engineer assisting in task orders for the United States Postal Service, including the creation and population of permit inventory spreadsheets, compilation of fire codes for permitting requirements, SWPPP and SPCC figure preparation, and generation of site visit data questionnaires. USA-wide, 2010.

Compliance Plans, Metro Atlanta Public Rail System (MARTA), Georgia, USA:
Project engineer responsible for preparation of Air Quality Compliance Plans for two compressed natural gas bus terminals in the Atlanta area and AutoCAD drawings for the Laredo bus terminal. Atlanta, Georgia 2010.

Relevant Experience – Other Project Experience

Management of Coal Tar in Roading Waste - Technical Literature Review, Canterbury, NZ:
Project engineer responsible for conducting a review of likely ranges of concentrations of PAHs in coal tar roading waste and identification of methods of recycling and disposal. Environment Canterbury Regional Council, 2015. Presented to the ALGA Conference 2016.

Demolition, Dismantlement, Decontamination, and Decommissioning (D4) projects, OVEC/ IKEC / AEP and TVA Coal-Fired Power Plants, USA:
Project engineer responsible for quantifying decommissioning costs for each plant while complying with applicable environmental and public health laws and regulations. The scope of the study was to address shutdown, decommissioning, demolition, and limited site restoration of the power plants. Responsibilities included: coal-fired power plant site walk downs, assistance in preparing risk/liability reports, and assistance in preparing the Project Planning Document (PPD) for the retirement and deconstruction of up to eight power plants. Responsibilities include: co-managing three projects, performing quantity take-offs, investigating land deeds, writing historical and technical sections of reports, and delegating tasks to junior staff. Ohio Valley Electric Corporation, Indiana-Kentucky Electric Corporation, American Electric Power, and Tennessee Valley Authority. 2012 - 2014.

Numerous Responses to Requests for Proposals: Project engineer assisting in responses to two large-scale Former Turner Air Force Base (AFB) requests for proposals including a Remedial Investigation / Feasibility Study (RI/FS) re-compete for chlorinated solvent contamination and an RI/FS re-compete for waste disposal sites at the former AFB. Contributed to proposals for numerous GE Energy proposals, including a large-effort Operations, Monitoring & Maintenance (OM&M) proposal, and response to a Request for Qualifications (RFQ) for a plant closure in Georgia. Responsible for performing historical file reviews, assisting in cost estimating and proposal text, completion of organizational charts, and leading task management teams. 2011 - 2014.

Pulp and Paper Mill Closures: Project engineer assisting in projects involving the closure of pulp and paper mills. Activities included: writing technical report sections for wastewater systems, landfills and site preparation for redevelopment. 2009.

Ecological Monitoring: Environmental specialist responsible for investigating the population status of and dangers to a monk parakeet population along the TXU Energy electrical network. TXU Energy, 2006 - 2007.

Relevant Publications and Presentations

Knapp, R.M., and Rogers, K., How do you manage a Contaminated Site? Presentation to the National Association of Women in Construction (Christchurch, New Zealand), October 2016.
Knapp R.M., Management of Coal Tar in Roading Waste. ALGA Contaminated Land Conference March 2016.
Knapp R.M., Installation of a Full-Scale In Situ Reactive Bio-Barrier. ALGA Contaminated Land Conference May 2015.
Knapp R.M., Nchako F., Hilliard R., Tillotson B., Harkness M., Butler-Veytia B., Antonoff T.
Implementation of a Full-Scale Reactive Bio-Barrier to Facilitate the Bioremediation of Chlorinated Volatile Organic Compounds. **Battelle** Bioremediation and Sustainable Environmental Technologies, Second International Symposium June 2013
Butler-Veytia B., Harkness M., Nchako F., **Knapp R.M.**, Tillotson B., Hilliard R., Antonoff, T.
Use of Zero-Valent Iron in a Low pH Aquifer to Facilitate Bioremediation of Chlorinated Compounds. **Battelle** Remediation of Chlorinated and Recalcitrant Compounds, Ninth International Conference May 2012
Myers R.C. "Modeling the Fate of Emerging Contaminants and Investigating the Importance of their Physical, Chemical, and Biological Properties in Water and Wastewater Treatment." **Master's Thesis**, Southern Methodist University, Dallas, Texas, 16 May 2009
Myers R.C., Gruben M., and Yu J.T. Evaluating the Fate of Micro-pollutants in Water and Wastewater Treatment Unit Processes Using Computer Simulated Models under Relevant Operational and Environmental Conditions. American Water Works Association (AWWA) and the Water Environment Association of Texas (WEAT): **Texas Water Conference** 14 April 2009
Myers R.C., and Yu J.T. Bioremediation of Hydrocarbons in Contaminated Soil. Presentation to the **U.S. EPA Region 6** Corrective Action Information Exchange Meeting 25 February 2009
Myers R.C., Matus J.R., and Yu J.T. Importance of Micro-pollutants' Physical/Chemical/Biological Properties in Water/Wastewater Treatment Removal. American Society of Civil Engineers (**ASCE**) **Annual Texas Section Conference** 2 October 2008