RESUMÉ

Professional Qualifications

Certified Environmental Practitioner (Site Contamination) 2016-
Chartered Chemist 2007-

Professional Affiliations

Australasian Land and Groundwater Society 2014-
Waste Management Institute New Zealand 2007-
Royal Society of Chemistry 2004-

Education

Ph.D. (Environmental Science), University of Canterbury, 1998
PGradDipSci (Environmental Science), Univ. of Canterbury, 1995
B.Sc.Hons. (Chemistry, 1st Class), Univ. of Canterbury, 1998

Technical Skills

Environmental chemistry
Contaminant risk assessment
Environmental policy

Managerial Skills

Project management up to $1M

Work History

Contaminated Land Consulting

HAIL Environmental 2016-
Elementary Consulting, Wellington, 2015-
Golder Associates (NZ), Wellington, 2012-2015
URS New Zealand, Wellington, 2005-2008
Entec UK, Newcastle, 2002-2005

Parliamentary Commissioner for the Environment

Senior Researcher 2008-2012

Research Fellowships

Georgia Institute of Technology, Atlanta, 2000-2001
NIWA, Hamilton, 1998-2000
Fernz Timber Protection, Auckland, 1996-1998

DR. DAVE BULL

Certified Environmental Practitioner – Site Contamination

HAIL Environmental Limited

Contaminated Site Specialist, Director

Dr. Dave Bull is a director of HAIL Environmental and holds Certified Environmental Practitioner – Site Contamination specialist certification. He has over 20 years of professional experience, including 15 years in contaminated land consulting in New Zealand and England, and is well known as a technical reviewer and speaker on contaminated land matters. Dave is New Zealand's leading authority on arsenic contamination, and has unhealthy interests in the distribution, speciation, bioavailability and sustainable management of heavy metals generally. His main practice areas are quantitative risk assessment and contaminated land management.

Selected Project Experience – Contaminated Land

Bioavailability of Arsenic and Lead

Arsenic bioavailability investigation, Hamilton Basin: Technical lead on Waikato Regional Council project looking at natural arsenic content of Hamilton Basin soils.

Arsenic bioavailability assessments, Christchurch: Investigated bioavailability of arsenic in South Christchurch anomaly; technical reviewer for bioavailability assessments of other sites in the area undergoing residential development.

Arsenic bioavailability assessment, Whitianga: Generated site-specific remedial target for residential development on site with elevated natural soil arsenic, Thames. The target was a key element of a regulator-approved remedial action plan, and saved the developer over $1M in unnecessary soil disposal costs.

Arsenic bioavailability assessment, Tasman: Investigated bioavailability of arsenic in selected former apple orchard soils for Massey University and Tasman District Council. The results were later used in support of residential development.

Arsenic bioavailability assessment, Central Otago: Investigated naturally occurring arsenic at a Central Otago vineyard, and generated site-specific soil guideline value in support of lifestyle development.

Accounting for bioavailability in contaminated land site-specific health risk assessment: Provided technical advice to the Ministry for the Environment on the scientific basis for evaluating arsenic and lead bioavailability in soils, and incorporating that information in contaminated land risk assessments.

Arsenic bioavailability assessment, Thames: Carried out New Zealand-first bioaccessibility studies, used results to prepare site-specific health risk assessment of the Moanataiari subdivision in Thames, which was constructed on land reclaimed using historic mining wastes impacted by arsenic, lead, cadmium and thallium.

Regulatory Use of Contaminant Bioavailability, England: Assisted Environment Agency in investigating potential use of toxic metal bioavailability in assessing contaminated sites across England and Wales, including local authority opinion survey, and comparison of available laboratory methods.

Regulator Support

Contaminated land specialist reviewer for Greater Wellington Regional Council since 2014, Marlborough District Council since 2014, Upper Hutt City Council since 2015, Waikato Regional Council since 2018, Gisborne District Council since 2019, Porirua City Council since 2019, South Wairarapa District Council since 2019, and occasional review work for at least six other councils. Includes land use register entries, resource consent applications for land use and/or discharges, site validation and monitoring, enforcement, investigating and remediating council-owned sites, regional technical and policy issues.

Friend Street Closed Landfill, Wellington: Characterised residual landfill contamination of residential sites in suburban Wellington, designed and validated remediation, acting for regulator consortium. Project backed by Ministry for the Environment's Contaminated Site Remediation Fund.

Former Orchard Sites, Hamilton: Carried out site-specific contaminated land assessment of housing on former orchard sites impacted by managed historic lead and arsenic contamination, and subject to Council management plan.

Fruitgrowers' Chemical Company, Mapua: Provided technical assistance to Parliamentary Commissioner for the Environment's investigation into the remediation of the FCC site at Mapua, near Nelson.

Wellington City Contaminated Land Rules: With planner Gina Sweetman, designed new objectives, policies and rules for managing contaminated land in Wellington City, which became District Plan Change 69, operative March 2010.

Environment Agency Landholdings, England: Prepared portfolio of 34 desk studies for regulator-owned sites across England.

Miscellaneous

Uranium in Agricultural Soils: Expert witness at Chatham Rock Phosphate Ltd. marine consent hearing to mine phosphorite from the Chatham Rise, addressing the potential for uranium accumulation in New Zealand soils as a consequence of the use of the phosphorite in fertilisers, and the potential for adverse chemical environmental effects as a result.

Oil Terminals, North Island: Managed environmental due diligence, desk studies, ground investigations, quantitative risk assessments and remedial options assessments within bulk storage terminals around the North Island, involving a range of hydrocarbons, solvents and other bulk liquids in free and dissolved phases, and subject to demanding health, safety and environmental regimes.

Transmission Gully Motorway, Wellington: Manager and technical lead successfully obtaining contaminated land consents for New Zealand Transport Agency's nationally significant highway project, and ongoing associated remedial works.

Housing Development, Auckland: Carried out site-specific contaminated land assessment of housing estate affected by historic use of lead-based paints, enabling medium-term risk to be mitigated with simple abatement measures.

Commercial Land Portfolio, North Island: Undertook environmental, health and safety due diligence on portfolio of commercial sites across the lower North Island, in support of business sale and purchase, for confidential client.

Industrial Site, Taranaki: Lead contaminated land investigator for three-hectare industrial site active since the 1930s, featuring extensive asbestos use and known impacts on water quality.

Pesticide Dump Site, Southland: Site investigation and remedial options assessment for legacy agricultural DDT disposal site owned by government department.

Network Environmental Risk Assessment: Managed environmental risk assessment exercise for network of more than 200 service stations around New Zealand, successfully meeting shortened timeframe.

Viasystems, Newcastle, England: Undertook desk study, risk assessment and ground investigation of 4 ha abandoned electronics plant. Managed tender process for site clean-up; provided environmental, health and safety support; certified principal contractor's works.

Defence Site, Southern England: Managed ground investigation of 500 ha coastal Defence site, lying within internationally important wetland. Designed and supervised ground works, which included ordnance and radiological surveys. Carried out site-specific quantitative contamination risk assessment.

RAF Burtonwood, Warrington, UK: On-site oversight of a novel dual-end-use remediation at the former RAF Burtonwood. Carried out radiological surveying of site during works. Principal author of completion report, the basis of a warranty for the site, which sold for more than £90M.

Selected Project Experience – Other Fields

Land and Water Forum: Represented mining association Straterra at Land and Water Forum focus group on good management practice.

Strategic Operating Environment Review: Managed strategic operating environment review for manufacturing and waste disposal sites in the Waikato River catchment, in advance of planning developments that would have potentially significant implications for site management. The review included existing resource consents, recent performance, and predicted future water quality and availability constraints.

Understanding Water Quality in New Zealand: Led production of Parliamentary Commissioner for the Environment's report on the problems posed by pathogens, sediment and nutrients in New Zealand waterways.

Biofuel Strategic Potential in New Zealand: Led Parliamentary Commissioner for the Environment's investigation into whether biofuels could play a part in New Zealand's energy future. Surveyed the state of New Zealand biofuel research, developed strategic criteria enabling conclusion that this would demand 'drop-in' diesels made from wood.

Southern Lignite: Estimated process emissions from proposed development of southern South Island lignite resources, and potential for mitigation, as part of investigation by Parliamentary Commissioner for the Environment

Change in the High Country: Led Parliamentary Commissioner for the Environment's investigation into the environmental effect of the tenure review process on the South Island high country, reaching conclusions on oversight and monitoring, land use, water quality, pest species, and conservation priorities.

Landfill Expansion, Wellington: Project manager of environmental and engineering investigations in support of major municipal landfill expansion.

Eucalypt Selection Project: Assisted New Zealand School of Forestry to assess the capacity of Chilean partners to work on a joint venture using novel methods to select new varieties of eucalypt with optimal properties for timber, pulp or biofuel use.

Devonport Naval Base, Auckland: Member of team investigating sediment contamination at Calliope Wharf, carrying out fieldwork, laboratory analysis and interpretation.

Redox Chemistry of Estuary Sediments: Post-doctoral scientist on team researching sub-millimetre electrochemical profiling and modelling of sediments. One published paper in a peer-reviewed journal.

Trace Metals in Estuary Sediments, Auckland: Post-doctoral scientist on team researching factors driving trace metal pollution in estuary sediments, using electrochemical profiling, image analysis and sediment transport modelling. Author of three published papers in peer-reviewed journals, including paper in *Environmental Science and Technology* on predicting metal binding phases from colour image analysis.

Chemical Recovery from CCA-Treated Wood Residues: Research fellow investigating the chemistry of chromated copper arsenate in wood and in treatment plant sludges, and approaches for recovering metals from sludges. Inventor of record for patent to Fernz Timber Protection Ltd, four published papers in peer-reviewed journals, doctoral thesis.