

## RESUMÉ



## DR. DAVE BULL

### HAIL Environmental Limited

Contaminated Land Specialist, Director

Dave has over 20 years of professional experience including 12 years in contaminated land consulting in New Zealand and England. Dave is an expert on the distribution, speciation, bioavailability and management of contaminants. He has designed, supervised, reported on and audited remedial works, quantitative risk assessments, technical studies, intrusive ground investigations and desk-based studies. Dave provides advice to a wide variety of clients including central, regional and local government, industry, and land developers.

### Professional Qualifications

Certified Environmental Practitioner (Contaminated Land Specialist) 2016-  
Chartered Chemist 2007-

### Professional Affiliations

EIANZ Member since 2015  
ALGA Member since 2014  
RSC Member since 2004

### Education

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

### Technical Skills

Contaminated land investigation  
and assessment  
Contaminant risk assessment  
Environmental chemistry  
Environmental policy

### 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

### Selected Project Experience - Contaminated Land

**Bioavailability of Arsenic and Lead:** Currently providing 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.

**Residential Remediation, Wellington:** Characterised residual landfill contamination of residential sites in suburban Wellington, designed and validated remediation, acting for regulator consortium.

**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.

**Regulator Assistance, North Island:** Currently advising regional and local councils on selected land use registers, resource consent applications to develop contaminated sites, peer review of preliminary and detailed site investigations, discharges from contaminated sites, regional issues

**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.

**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.

**Moanataiari Subdivision, Thames-Coromandel:** Carried out New Zealand-first bioaccessibility studies and 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.

**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.

**Aging 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.

**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.

**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.

**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.

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

**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.

**Bellway Homes, Gateshead, UK:** An urban regeneration project in which a former railway depot heavily contaminated with non-aqueous phase liquids was being redeveloped for high-quality residential and commercial end use. Supervised additional site investigation, undertook risk assessment, designed remedial action plan.

## 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.