

Highlights of projects designed and managed by Drs. Ben Keet

Location	Client	Project Description
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2010

Havelock North	CDL Land	Grid based sampling and On-Site XRF analysis of soil on the Arataki Development.
Christchurch	Delta Infrastructure	Prepare Scope of Works, phase 2 Environmental Assessment, Remediation and Validation.
Havelock North	Landsdale Development	Remediation Brookvale Rd Development, On-Site XRF analysis of Arsenic and Copper impacted soil.
Wellington	Veranis Corporation Ltd	Managing Director of Veranis Corp (3 – 10 / 2010), responsible for introducing low emission emulsion fuels in public transport sector (Wellington and Auckland), through marketing plans, presentations and meetings with prospective clients.
Christchurch	Delta Infrastructure	Validate remediation of fence lines and carry out baseline survey of sediment ponds.
Havelock North	Landsdale Dev.	Remediation hotspots on development caused by burning of lead painted and treated wood (bee hives and bases.)
Wellington	Ministry for the Environment	Report on Investigation of brominated flame retardants present in articles being used, recycled and disposed of in New Zealand. Focus on Brominated di-phenyl ethers. Report is NZ's contribution to Stockholm Convention. Report now available on MfE website.
Wainuiomata	Greater Wellington RC	Audit quality clean-fill ex-Waiwhetu Stream. Recommend remediation measures, implement and validate results.
Christchurch	Noble Investment	Construction Site Management plan

2009

Christchurch	Noble Investment	Environmental Site Assessment phase 1 of 25 ha orchard block. Detailed aerial photo study, on-site analysis of heavy metal contamination, Remedial Action Plan.
Taupo	TDC	Phase II Assessment of buried waste on old Electricity Board depot using Ground Penetrating Radar (GPR) and soil sampling / on site analysis.

Hastings	HDC	Supervision and validation of remediation of site in Havelock North.
Taupo	Greg Lamb Ltd	Remediation of fence lines; supervision and on-site validation of 630 fence post contaminated soil column removals and remediation of 3 km of arsenic and zinc contaminated 'fence-lines'.
Taupo	TDC	Assessment of buried waste on old depot using Ground Penetrating Radar (GPR) and soil sampling / on site analysis.
New Zealand	Private group	Assessment of variety of emulsifiers, dispersants and surfactants for production of emulsified fuel.
Taupo	Greg Lamb Ltd	Supervision and validation of remediation of 5 ha landfill site.
Nelson	Greenhough and Wheeler Ltd	Assessment of mercury emission to air and soil from proposed crematorium, including recommending mitigation measures.
Arataki, Havelock North	HDC	Remedial action plan for soil blending operation.
Hastings	Logan Stone	Remediation and validation of William Street property.
Meanee, Hawkes Bay	Taylor Corp.	Assessment of residue levels on 80 ha cropping land, including woolshed, several sheep-dips and yard areas.

2008

Arataki, Havelock North	HDC	Site assessment of sewer corridor over old orchard properties.
Lyndhurst Hastings	HDC	Remediation of detention ponds area.
Te Awanga, Hawkes Bay	Private	Pre-purchase assessment of woolshed with suspected sheep-dip sites, creek disposal, sheds and tractor workshop
Taupo	Wharawhaka East Ltd	Remedial action plan for old TDC landfill to be developed at housing estate.
Hastings	RTD Pacific	Validation of topsoil for gardens retirement village
Brookvale Havelock North	Dugh Properties Limited	Remediation of 2 ha PAH contaminated site, Environmental life cycle analysis of remedial options, supervise remediation, validate site..

Clive, Hawkes Bay	Russell Roads Ltd	Site validation after removal of PAH and CN (gasworks) waste from a 80 ha site.
Palmerston North	Massey University	Develop nitrate plume remediation systems for groundwater systems discharging in rivers and lakes
Lyndhurst, Hastings	Hastings District Council	Supervise soil blending and validate soil contaminant levels before transferring to other locations.
Taupo, Waikato	Wharewaka East Ltd	Prepare site management plans of uncontrolled landfill and former sheep-dip on a 62 ha (550 lot) subdivision, research various remediation alternatives and prepare remedial action plan.
Wellington	Bios Fuels Corporation Ltd	Appointed senior scientific advisor to implement QA/QC systems for emulsified fuel production and testing facility including setting up a research laboratory.
Taupo, Waikato	Cardno - Contact / Unison	Corrosivity assessment along high voltage cable transect by determining relevant chemical parameters in soil, water and air.
Omahu, Hastings	Manchester Property Trust	Advise on Assessment Strategy prior to property sale.
Mangakino, Waikato	Wairarapa Moana Inc.	Audit Resource Consent Application report on Mangakino Closed Landfill.
Brookvale Havelock North	Dugh Properties Limited	Environmental Site Assessment and Remedial Action Plan for 15 lot subdivision.
Pandora, Napier, Hawkes Bay	Eden Properties Limited	Remediation of cadmium contaminated industrial site (8 ha), Remediation and Validation report.
Lyndhurst, Hastings	Hastings DC	Validate soil in several reserves for planned storm water detention ponds.
Rotowaro, Waikato	Environment Waikato	Audit Remedial Strategy Report for the historic site of the 9.7 ha Rotowaro Coal Carbonisation Plant.
Westervoort, Holland	Province of Gelderland	Finalise active in-situ bio-remediation of BTEX contamination in the core areas and hand-over to council staff the following MNA phase of the project.
Panmure, Auckland	Confidential	Assess progress of MNA project, identify bottlenecks and provide alternative remedial options for multi-solvent (VOC – VOCl) groundwater contamination on a 6 ha former paint manufacturing site.
Brookvale, Havelock North	Snow Wilkins Limited	Carry out potential contaminated object assessment report for 19.4 ha property under proposed plan change 44.

Nottingley, Hastings	Hastings DC	Validate and Certify soil piles for re-use.
New Lynn, Auckland	URS Ltd	Provide site management assistance using XRF to identify areas with lead glaze and porcelain pigment contamination at 4 ha historic New Lynn Brickworks place.
Onekawa, Napier, Hawkes Bay	Eastbay C&C Limited	Pre-purchase site audit of 8 ha industrial property, provide Environmental Damages Report.
Frimley, Hastings	RJ Holdings Ltd	Supervise remediation of sheep-dip on 8 Lot 2 ha subdivision. Remediation and Validation report.
Parkvale, Hastings	RCT Pacific	Carry out XRF survey to identify zinc in topsoil along stream on 7 ha development.
Clive, Hawkes Bay	Russell Roads	Validate remediation of gasworks fill removed from a large agricultural block
Frimley, Hastings	Kelsey Ataera	Plan, supervise remediation of 7,000 m ³ soil and report on remediation and validation of 3.3 ha, 37 Lot subdivision
Woolwich, Hastings	Tyre Power Hastings	Pre-purchase site assessment of ex-car wrecking yard.
Napier, Hawkes Bay	Multiple	Organise and chair seminar "Financial risks and Opportunities of Contaminated Land"
Meeanee, Napier	Confidential	Identify location and extent of 7 sheep-dip sites on 35 ha vineyard property.
Frimley, Hastings	Frimley Grove Dev. Ltd.	Combined site assessment, remediation and validation report on 4.8 ha development.
Frimley, Hastings	Frimley Estate	XRF analytical services, hotspot identification and remedial advice for two developments (11 ha total).
Twyford, Hastings	Frimley One Dev. Ltd.	Final audit compliance work, 5.2 ha development.

2007

Nottingley Rd. Hastings	Hastings DC	Sample & validate fill in services trench.
Frimley, Hastings	RJ Holdings Ltd	Detailed Site Assessment and Remedial Action Plan
Nelson Park, Hastings	Charter Hall, Sydney	Pre-purchase due diligence site assessment of future large footprint shopping mall complex, currently various commercial and sports ground uses.

Ocean Beach, Hawkes Bay	Hill Country Limited	Assess potential soil contamination 500 ha beach resort development including current and former yards, woolshed, several other buildings and sheds, swim dips and spray-dip.
Hamilton WasteMINZ	Multiple	Workshop on MNA Hydrocarbons and Chlorinated Solvents Workshop on Hotspot detection including tour in Hamilton – Ngaruawahia area.
Hastings, Hawkes Bay	Summerset	Remediation Plan for retirement village
Mareakakaho, Hawkes Bay	Confidential	Identify sheep-dips and farm tips as due diligence audit for large farm purchase (30,000 acres).
Hastings Hawkes Bay	Summerset	Detailed assessment of old 7.8 ha orchard, glass houses with underground tanks
Shoal Beach, Hawkes Bay	Hansen Development Limited	Assess risks associated with woolshed and nearby sheep-dip to public when converted to educational and recreational facility.
Hastings Lyndhurst	Kelsey & Ataera	Remediation of 37 lot subdivision, by soil mixing and burial
Hastings, Lyndhurst	Owner	Soil assessment of orchard for 8 lot subdivision
Hastings, Lyndhurst	Design company	Investigation of 7 lot subdivision on former market garden block
Ngaruawahia	Councils / consultants	Workshop on Chlorinated Solvents (VOCL/DNAPL) in participation with Victoria University
Ngaruawahia	Councils / consultants	Workshop on site assessment strategy in participation with Victoria University
Hastings Lyndhurst	Kelsey & Ataera	Detailed investigation 37 lot subdivision
Napier	Chestnut Council	Research uptake of DDT and metabolites in chestnuts
Hastings, Lyndhurst	Developer	Check post-mixing arsenic levels on 34 lot development
Christchurch	Developer	Environmental Audit commercial development
Auckland, Avondale	Hing Lung	Environmental audit food store

Hastings, Lyndhurst	EPS Ltd	Verification 60 lot subdivision
Hastings, Williams Street	Surveyor	Investigate 8 lot subdivision

2006

Hastings Marakakaro Rd	private	Pre-purchase check of Farm, search for sheep-dip evidence
Hastings, Whakatu	NZBP Ltd	Environmental Audit Natural Casings Factory, Check permits, soil & groundwater condition.
Hastings, Lyndhurst	EPS Ltd	Assessment and Remediation instructions for 60 lot subdivision
Hastings, Lyndhurst	Planner	Soil assessment of orchard for care house complex extension.
Vorden, Holland	Hotel	Lab and pilot study to assess efficiency of mobilisator application during end phase of in-situ remediation of oil contaminated soil below an historic hotel.
Wellington	Ministry for the Environment	Technical edit of sheep-dip guidelines (Chapters 6, 7 and 8 – Assessment, Remediation and Management).
Havelock North	Orchard Owner	Second opinion soil assessment followed by costing of several remediation options.

Knokke, Belgium	Consultant	Design PCE/TCE remediation using potassium permanganate to oxidise (de-chlorinate) contaminants under the water table.
Napier	Hawkes Bay Regional Council and others.	Soil sampling course and XRF workshop on old (buried) sheep-dip site, using trenches dug through site.
Ngaruawahia, Waikato	Auckland, Manakau and other City Councils, and others.	Soil sampling course and XRF workshop on old sheep-dip site to learn systematic sampling while compare with previous investigation results.
Melbourne, Australia	Consultant	Assist in determining size of soil vapour extraction equipment and discuss use of application of advanced mobilisator for remediation under road to reach Clean-up to Extent Practicable (CUTEP) earlier then with current method.

Hastings	Planner	Remediation plan for arsenic contaminated orchard to be developed into a retirement village. In close cooperation with planner developed a cost-effective remediation method.
Hastings	Real Estate Agent	P-lab investigation; assess possible residues inside building of chemicals used in Methamphetamine production.
Napier	Developer, Hamilton	Environmental site assessment and baseline study of soil and groundwater of former timber treatment facility to ensure remediation levels comply with international OHS guidelines.

2005

Auckland, Avondale	Developer	ESA former service station / car yard build across a creek bed.
Havelock North, N.Z.	Private	Remediate old sheep dip site, establish areas of soil and sludge spreading, plan and execute phased remediation.
Hastings, Lyndhurst	Investor	ESA site in Lyndhurst block (ear marked for subdivision).
Auckland , Meadowbank	Private	ESA for subdivision of site previously in horticultural use.
Auckland, New Lynn	Private	ESA for subdivision of site previously in horticultural use with differential fill on site
Rheden, Holland	Council	Rainwater infiltration project for new housing estate

2004

Havelock North, NZ	TT Trust	On-site supervision of building retaining wall 3 m high, 80 m long and site works for footings, sewer and storm water lines for large shed
Scherpenzeel, The Netherlands	Interface International bv	Pilot test using advanced oxidation techniques (compare potassium permanganate with other proprietary compounds) to remediate high concentration cis-dichloroethene and vinyl chloride contamination below factory building
The Hague, The Netherlands	City Council of The Hague, The Netherlands	Install in-situ bioremediation system on school yard (to treat plume from next door garage) techniques aerobic degradation by biosparging in sandy layers

		and nitrate reduction in silt layers
Arnhem / Duiven, The Netherlands	Liemers infra group	Design rainwater infiltration system based on on-site permeability measurements for new subdivision
Bunnik, The Netherlands	AMOS Consulting	In situ permeability test and biodegradation lab-study
Hong Kong (through consultant in The Netherlands)	Confidential	Assist with contract specifications system to treat contamination with beta-HCH and a cocktail of other chlorinated compounds
Brussels	AKZO-NOBEL	Finalisation in situ remediation of xylene contaminated soil and groundwater

2003

Bossuyt-Bos Paints (Belgium)	Geosan	Biodegradation Test, anaerobe lab scale
Wellington	MfE	Editing Handbook on Monitored Natural Attenuation (MNA)
Duiven, NL	Gem. Duiven	Extensive investigations of soil near car wrecker / waste dump
Scherpenzeel	Interface	Anaerobe dechlorination test, lab microbiological study, enzyme study, and full scale pilot test
Brussels	MAVA	In house training, advanced site investigation techniques, MNA and anaerobic sampling
Nelson	MfE	Workshop Site Investigation on Contaminated sites
Nelson WasteMINZ	MfE	Key note paper on Contaminated Sites in Europe focussing on new views on Risk Perception and Emerging Substances
Maastricht	Heijmans	Biodegradation Test, aerobe lab scale, in marl rock
Velsen	NAM	Project management
Harderwijk	Broekhuis	Biodegradation Test, aerobe lab scale Pilot test.
IJmuiden	BK Ingenieurs	Biodegradation Test, aerobe lab scale Pilot test.
Den Haag	Gem. Den Haag	Realisation of in-situ remediation oils and BTEX in groundwater

Zaandam	Kuiper en Burger	Biodegradation Test, aerobic lab scale Pilot test.
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2002

Beirut Libanon	UN ESCWA	Give workshop on risk management and in situ site remediation to senior government representatives of 16 Arab countries.
Utrecht	SbNS (Soil remediation Management of Dutch Railroads)	In house training, training course on in situ remedial techniques, project management, contracts, insurance and decision taking in the presence of doubt, over a 4 week period
Langbroek	Bartimeus	Monitoring Natural Attenuation
Giesbeek	Hands-On Training	Lecturers on courses on: In-situ remediation, removal free floating product, anaerobic sampling, evaluation natural attenuation parameters, statistics, dimensioning bioventing and biosparging
Scherpenzeel	Interface	Biosparge test - full scale
Rotterdam	Vopak (large chemical storage complex (42 ha)	Performing pilot test diffusion sparging (membrane system to dissolve pure oxygen in groundwater at 40 mg/ltr)
Hardenberg	Aveco de Bondt	Study and lab test remediation of heavy oil products contamination, nitrate and surfactants / permeability tests
Arnhem	Javasto	(Further) investigations of soil, evaluation of remedial alternatives
Oldenzaal	Geofox	In-house training, for all regional offices over 3 week period
Kerkrade en Olen (B)	Machine & Metal factory Het Zuiden	(Further) investigations of soil- remedial option
Veenendaal	Kuiper en Burger	Biodegradation Test, aerobic lab scale Pilot test.

2001

Geldermalsen	Eerland	Development of environmental laboratory, write analyses protocols and a lab construction & instruction manual
Giesbeek	Hands-On Training	Main lecturer of courses on: In-situ remediation, removal free floating product, anaerobic sampling, evaluation natural attenuation

		parameters, statistics, dimensioning bioventing and biosparging
Scherpenzeel	Interface	Large scale remedial investigation Biological degradation tests aerobic / anaerobe Modelling of groundwater
Dieren	De Rijn	Investigations of soil in relation to historic metal contamination - legal issues
Boskoop	Reef	Performing Biodegradation tests

2000

Westervoort	Regional Council of Gelderland	Realisation of in-situ remediation oils and BTEX in groundwater of layered silt-clay soil
Vilvoorde	Akzo-Nobel	Realisation remediation 'hotspot B' airsparging and passive SVE; incl. second phase Zero-situation monitoring in cooperation with Tauw and VITO
Uitgeest	Bodemzorg	Natural Attenuation field test incl. field analysis using spectrophotometers: FEB project
Utrecht	Gem. Utrecht	Realisation of substrate (methanol-lactate) injection system for anaerobic remediation of Per, Tri and 1,1Cis-DCM in groundwater
Scherpenzeel	Interface Intl.	Design & Dimensioning/ pilot test In-situ Remediation System for Per, Tri, 1,1Cis-DCM, VC & Xylene, Toluene and mineral oil in Groundwater and Soil (1,5 yr project)
Arnhem	Confidential	Develop new heat exchange system Obtain patent on system Application on commercial waste products
Giesbeek	Hands-On Training	Assist by providing lecturers on courses on: In-situ remediation, removal free floating product, anaerobic sampling, evaluation natural attenuation parameters, statistics, dimensioning bioventing and biosparging
Waalwijk	Elf Ato Finley	Pilot test In-situ Remediation System for 1,1,1, Tri, 1,1 Di, Cis, VC & Benzene in Groundwater and Soil (6 phases)
Soesterberg	Ministry of Defence	Completion of research project on natural attenuation in free floating product layer "Kuיל van Keet" data interpretation of automatic soil gas concentration and flux monitoring data.
Bunschoten	Pr. Utrecht	Verification of in-situ remediation proposal Recommendation for improvement of plan
Capellen	BP Luxembourg	Finalisation of 3 yr in-situ remediation Verification (Fugro)

		showed only 4 of 129 samples over Sw3 clean-up standard Demobilisation of dual computerised system
Vorden	Hotel Bakker	Realisation of in-situ remediation min. oil / BTEX contamination below centuries old inner city Hotel using biosparging, nutrient dosing with GHCD-membrane system.
Bussem	Soelaas M.A.	Design in-situ remediation system BioTest execution

Soesterberg	Ministry of Defence	Start-up in-situ remediation system Monitor breakdown along two 180 m long horizontal boreholes under major helicopter (Chinook) hanger Finalise NOBIS report on influence Bio Bore on diffusion and micro-sparging
Esch-sur-Alzette	Garage l'Etoile	Finalisation of in-situ remediation Verification analyses by Luxcontrol s.a. Excavation 4 m3 soil: last remaining hotspots
Schengen	Kuwait Petroleum	Realisation in-situ remediation (cont.) Re-Program unit (IHRIS™ modem control)
Arnhem	SbNS	Remedial investigation Tankplaat 1, Arnhem
Deventer	Descol Chemie	Modifications to remediation system Downsizing of system More emphasis on nutrient dosing system
Zevenaar	Essilor	Realisation groundwater remediation system Monitoring acetone / isopropanol conc.
Kalenberg	Staatsbos-beheer (SSB)	Finalisation in-situ remediation in peat-soil Remediation of petrol - lubrication oil spill using anaerobic nitrate based membrane system
Huizen	Soelaas M.A.	Design and testing 1,1,1-Tri, 1,1-Cis DCM and VC contamination. BioTest execution

1999

Westervoort	Regional Council of Gelderland	Design in-situ remediation pilot test
Waalwijk	Elf Atofinley	Design & Dimensioning/ pilot test In-situ Remediation System for 1,1,1, Tri, 1,1 Di, Cis, VC & Benzene in Groundwater and Soil
Amerfoort	SbNS	Feasibility study Steam injection (GHM = project manager: other consortium members: Tauw, TNO, UT, Steamtech (US),

Eindhoven	Philips/ Milieudienst Eindhoven	Pilot test Bioslurping as primary remediation technique for large petroleum free product recovery project Evaluate and Report Interim Results
Oostende	Airport	Pilot Test and Report In-situ Remediation design parameters aerobic - anaerobic system Design of a Full Scale In-situ Remediation System for Groundwater and Soil
VIS-group	Regional Council of Utrecht	Carry-out second opinion assessments of remediation plans (SP's) having in-situ components Provide framework for team for Verification In-Situ remediation (VIS)
Leidschendam	VVE flat	Design in-situ remediation system Realisation using IHRIS modules for biosparging & alternative electron acceptors
Rollingergrund	Shell Luxembourg	Surfactant aided in-situ bioremediation design and lab study Design relative simple systems for in-situ remediation of 6 locations
TerApel	VSN-groep	Final polishing step of 3 year in-situ remediation project H ₂ O ₂ , Na-ester and Methanol injection to remediate last m ³ 's of waste-oil contaminated 'iron-oxide-layer'
Guidebook	Min. of Defence + NOBIS	Write Guidebook quality improvements for deep groundwater monitoring and monitoring well installation using oilfield techniques
Esch sur Alzette	Citroen	Install automatic system for dosing Fe(III)NO ₃ in diluted surfactant solution to aid bioavailability of min. oil.
Capellen	BP Luxembourg	Flush scoria HF0-50 layer with BASF lutisol LS 03 solution to free trapped oil to allow more complete bioremediation
Soesterberg	Min.Defence + NOBIS	Install micro-spargers and diffusion sparger Make 2 instrumented 170 m long horizontal borings (in re-usable HDPE casings) Record (16 channel data loggers) redox variations during start-up of Micro-Sp and Diff-SP strings

1998

Haarlem	Nat. Ned. insurance	Design in-situ remediation system for large fuel-oil contamination below 18 century office Determine natural attenuation parameters
Amersfoort	SbNS	Study of investigation and remediation for application on PAK and DNALP contaminated gasworks area in Amersfoort
Veenendaal	AXA / Stenman The Netherlands BV	Completion of large Tri/Per in-situ remediation by airsparging and SVE Execute verification protocol Mass balance calculations; compare VOCl's originally present in groundwater and soil with extracted VOCl's as determined by

		air concentration and air flux measurements
Weert	Maasgoed	Design in-situ remediation for redevelopment property
Hengelo	EMGA	Make and have approved remediation plan based on monitoring only
Deventer	Descol/Sika	Design and implement in-situ remediation based on alternating aerobic / anaerobic cycles to remediate layered silt-sand sediments contaminated with xylene and glue Redox electrodes and ORC indicators of flow are used in the process control system
Poland	Akzo	Preparation for Bioslurping tests
Loenen a/d Vecht	Adviesbureau MSI	Design and implementation instructions of a 'monitor-only' remediation plan
Tegelen	Aben & Slag Advocaten	Design of in-situ remediation for contamination below workshop
Schengen	Kuwait Petroleum	Installation of in-situ remediation system conform design criteria of Dept of Geology of Luxembourg Supervise underground works Program unit (IHRIS™ modem control)
Rodange	BP	Investigate spill incident at end of groundwater remediation project
Vilvoorde	Akzo	Completed remediation plan 'hotspot B' E expert advisor in meeting with OVAM
Westervoort	City Council	Remediation planning in relation to funding alternatives Gemeente-Province-Private Make cost estimates of alternatives for solicitor

1997

Eindhoven	BP The Netherlands	Design & Implementation of an In-situ Bio Remediation System for Groundwater and Soil
Veenendaal	AXA Stenmen The Netherlands BV	Activate and Optimise the In-situ Remediation System for Groundwater and Soil; Operate on-site Lab using GC-ECD-FID Evaluate and Report Interim Results
Vilvoorde	Akzo Nobel	Pilot Test and Report In-situ Remediation of Groundwater and Soil; Design of a Full Scale In-situ Remediation System for Groundwater and Soil
Soesterberg, location nr. 2	Ministry of Defence	Implement and Activate the Full Scale In-situ Bio Remediation System for Groundwater and Soil

Soesterberg, location nr. 3	Ministry of Defence	Evaluate and Report Interim Results of Intrinsic Bio Remediation of Ground-water; Discuss Further Investigation of the Soil
Soesterberg, location nr. 4	Ministry of Defence	Pilot Test and Report In-situ Remediation of Groundwater; Design of a Full Scale In-situ Bio Remediation System for Groundwater
Soesterberg, location nr. 3	Ministry of Defence	Further Investigation of the Soil by applying (Ground Penetrating Radar) GPR; Further Investigation of Intrinsic Bio Remediation in unsaturated zone, and capillary fringe, determine influence of atmospheric changes.
Eck & Wiel	BPSI	Evaluate and Report Interim Results of the In-situ Bio Remediation System for Soil
Ter Apel	VSN Utrecht	Evaluate and Report Interim Results of the In-situ Bio Remediation System for Groundwater and Soil
Hengelo(O)	EMGA	Cost Evaluation of Remediation Alternatives large development site; Design of an In-situ Bio Remediation System for Groundwater
Deventer	Descol Chemie	Design and Implementation of an In-situ Bio Remediation System of Xylenes in Loamy Soil
Kalenberg	Staatsbos- beheer	Design and Implementation of an In-situ anaerobic Bio Remediation System of lubricant oils in Peat Soil
Capellen	BP Benelux	Implement and Activate the In-situ Bio Remediation System for Soil
Rodange	Kuwait Petroleum Luxembourg s.a.	Activate and Optimise the On site Remediation System for Groundwater
Schengen	Kuwait Petroleum Luxembourg s.a.	Activate and Optimise the In-situ Soil and Groundwater Remediation System

1996

Veenendaal	Confidential	Implementation of an In-situ Remediation System for Groundwater and Soil
Ter Apel	VSN Utrecht	Implementation of an In-situ Bio Remediation System for Groundwater and Soil
Helmond	J.H. de Wit	Cost Evaluation of Remediation Alternatives; In-situ Testing of Soil and Groundwater (flushing Heavy Metals);

		Design of an In-situ Remediation System for Groundwater and Soil
Eindhoven	BP The Netherlands	Cost Evaluation of Remediation Alternatives; Design of an In-situ Bio Remediation System for Groundwater and Soil
Soesterberg, location nr. 2	Ministry of Defence	Pilot Test and Report In-situ Remediation of Groundwater and Soil; Design of a Full Scale In-situ Bio Remediation System for Groundwater and Soil
Soesterberg, location nr. 3	Ministry of Defence	Investigate Intrinsic Bio-remediation of Groundwater
Eck & Wiel	BPSI	Cost Evaluation of Remediation Alternatives; Design and Implementation of an In-situ Bio Remediation System for Soil
Capellen	BP Benelux	Investigation of Soil and Groundwater; Supervising Excavation; Comparison study of Ground Penetrating Radar (GPR) with standard site assessment Risk Assessment; Design of an In-situ Bio Remediation System for Soil
Airport Luxembourg (depot Findel)	ESSO Benelux	Preliminary Investigation of Soil and Soil Air
Airport (Parking Lima)	ESSO Benelux	Initial Investigation of Migration of Pollutants; Further Investigation of Soil Contamination Investigation of Deep Groundwater Contamination
Bertrange	ESSO Benelux	Investigation of the Effects of a Spill of Hydrocarbons; Investigation of the Soil; Cost Evaluation of Remediation Alternatives
Rodange	Kuwait Petroleum Luxembourg s.a.	Investigation of Soil and Groundwater; Supervising Excavation; Risk Assessment; Design and Implement an On site Remediation System for Groundwater
Schengen	Kuwait Petroleum Luxembourg s.a.	Investigation of Soil and Groundwater; Supervising Excavation; Risk Assessment; Several proposals to amend the 'Authorisation' Design and Implementation of an In-situ Soil and Groundwater Remediation System
Eindhoven	BP The Netherlands	Cost Evaluation of Remediation Alternatives; Design of an In-situ Bio Remediation System for Groundwater and Soil
Capellen	BP Benelux	Investigation of Soil and Groundwater; Supervising Excavation; Risk Assessment; Design of an In-situ Bio

		Remediation System for Soil
Airport Luxembourg (depot Findel)	ESSO Benelux	Preliminary Investigation of Soil and Soil Air

1995

Veenendaal	AXA Stenman Holland BV	Cost Evaluation of Remediation Alternatives; Design of an In-situ Remediation System for Groundwater and Soil of a 9 ha metal ware processing facility
Ter Apel	VSN Utrecht	Cost Evaluation of Remediation Alternatives; Design of an In-situ Bio Remediation System for Groundwater and Soil Large train, tram and bus depot.
Ijmuiden	Corus, Steelworks	Design of a non-destructive System to detect Leaks in High Voltage Power Cables present in cable beds up to 40 m wide on the 270 ha property.
Rolde	Q8 The Netherlands	Cost Evaluation of Remediation Alternatives; Design of an In-situ Bio Remediation System for Groundwater and Soil for a service station including the 300 m plume area.
Soesterberg, POL North	Ministry of Defence	Feasibility Study of In-situ Bio Remediation of Soil
Arnhem	Avebe	Design and Implementation of an In-situ Bio Remediation System for Soil under a residential high rise building
Zwolle	BP The Netherlands	Further Investigation of Soil and Groundwater; Design of an In-situ Bio Remediation System for Groundwater and Soil
Dudelange	Texaco Benelux	Investigation of Soil and Groundwater; Supervising Excavation; Risk Assessment and final Remediation Audit
Cote d'Eich	Texaco Benelux	Auditing of Soil and Groundwater assessment; Risk Assessment
Rodange	BP Benelux	Further investigation of Soil and Groundwater
Hampton, Vic. Aus	Ampol	Design and pilot test surfactant flushing system to remediate fractured bedrock from diesel contamination Pilot test new design bio-reactor to degrade diesel-surfactant mixture Develop quick site test to assess concentration of surfactants in diesel contaminated groundwater
Grollo site: Customer retail	Caltex, Vic	Investigate large product release Carry out bio-slurping (dual extraction) tests, in-situ respiration tests and design

outlet North Melbourne		remediation system. Supervise installation of system Design product collection, demulsivication, and biological treatment unit Supervise building, installation and operation of same
Australia	Ampol / Mobil / Shell / BP	carry out approx. 70 ESA's on service stations design, plan and supervise approx. 40 on-site soil remediations of service station (demolish & auction)
Zwolle	BP The Netherlands	Further Investigation of Soil and Groundwater; Design of an In-situ Bio Remediation System for Groundwater and Soil
Rolde	Q8 The Netherlands	Cost Evaluation of Remediation Alternatives; Design of an In-situ Bio Remediation System for Groundwater and Soil
Dudelange	Texaco Benelux	Investigation of Soil and Groundwater; Supervising Excavation; Risk Assessment
Cote d'Eich	Texaco Benelux	Investigation of Soil and Groundwater; Risk Assessment
Rodange	BP Benelux	Further investigation of Soil and Groundwater

1994

Arnhem	Texaco for AVEBE bv	In-situ respiration test Determination of heterogeneity of soil Design in-situ installation for placement under basement of apartment flat Design and experimental construction of sliding side-doors in air injection filters to allow air in-take level to be regulated (from 11 to 4 m b.g.l.) Realisation of remediation in 1 year
Ogden, Utah US	Hill and other AFB	Seconded to Battelle Bioreserach Group, assisted with on-site measurements (Airforce Bioventing Initiative / Natural Attenuation) at aircraft fuel supply and marine support facilities

1993

Sydney Airport	Caltex	Design of very large 500 well free product recovery system on depot/retail site (aircraft filling) Supervise implementation, Tuning of extraction rates, and on-going site investigation (continuous coring to quantify volume per 2" soil layer) to assess volume to be recovered Design and Patented special fully pneumatic automatic hydrocarbon recovery system (MPRS)
Trail Bay, NSW	Caltex	Oil terminal facility investigation of groundwater plume (through layered and fractured rock) and nearby (200 m) river bed where contaminated groundwater emerged Risk assessment studies Risk

		communication to local house owners (situated above the plume)
Mulgrave, Vic	Caltex	Designed and pilot tested Soilbank (Bio-pile) soil remediation system on large retail site Obtained approval of EPA to use site to treat soil from other smaller site in the same area
Australia, Vic, SA, NSW, Qld, WA,	Ampol / Mobil / Shell / BP	carry out approx. 400 ESA's (Environmental Site Assessments) on service stations design, plan and supervise approx. 50 on-site biological soil remediation of service station (demolish & auction), & 150 projects using on- and off-site soil remediation.

1987- 1993 (remediation highlights only)

Shell Aus	Melbourne	Design & Built soilbank system to remediate approx. 60.000 tons of heavy fuel oil contaminated soil on main oil terminal
Ampol	Victoria	Carry out environmental risk assessment of potential service station locations using DRASTIC model
BP Aus	Brisbane	Design, implement and operate landfarm to treat contaminated soil and proces sludges (PAK's, HC and other proces chemicals)
Caltex Aus	Springvale	Design & Built first soilbanks in Australia Treat 30.000 tons of diesel contaminated soil on-site
Mobil NZ	Auckland, Nelson	Investigate terminal Design in-situ remediation system
Hickson Timber treatment	New Zealand	Design & Implement monitoring network Copper Chromom Arsenic, Boron & PCP contaminated site Carry out monitoring at Chistchurch plant
Conf.	Lake Taupo	Investigate 5 km long Dioxine (ex PCP) plume from timber mill
Shell Aus	Melbourne	Design and install White rot fungi remediation system (Phosphor pesticides)
Caltex Australia	Vic, NSW, Qld, WA	Investigate and remediate over 100 service stations, many country depots
Cabot Aus	Vic, Altona	Investigate groundwater contamination near PAK storage
Altona Refinery	Vic	Investigate contamination in processing and cracking areas, design system to determine coke level in PAK tanks
Wellington	BP NZ	Install in-situ remediation system which required operation during removal and transport off-site (in 1 piece) of 3 tanks (15 - 40 million litres) in project 'BP on the Move'.

Masterton	Masterton CC	Investigate gasworks originally build in 1884 Investigate Uranium coated Al pellet distribution (used in '60 naphta cracker) Design in-situ remediation system to avoid lighter PAKs and BTEX entering local stream; Implement part of system.
Shell Aus	Sydney Refinery	Investigate underground oil movement near old wood gasification plant (gasworks). Design in-situ remediation system
Caltex Aus	Sydney Refinery	Investigate large MEK and toluene spill. Design in-situ remediation system for implementation by Caltex
BP NZ	Whawetu terminal	Design in-situ remediation system. Implement same near rail siding & truck loading areas
BP NZ	Gracefield	Design & implement in-situ remediation system. Recover approx. 70.000 ltr diesel using vacuum enhanced recovery system
Timaru	Caltex NZ	Design steam injection remediation heavy fuel oil
New Zealand	Caltex NZ	Investigate all 17 Oil terminals w/ approx 90 contamination 'hotspots', Install > 1100 monitoring wells. Design and implement in-situ remediation systems
Avelon, Lower Hutt	Shell NZ	In-situ remediation petrol spill Design & Build dual pump automated remediation unit Recover 60.000 ltr petrol in 4 months
Gisborne	Gisborne CC	Investigate hydrological systems around landfill. Design of Landfill Leachate retaining system