



WILLIAM C. CROMER PTY. LTD.

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ENVIRONMENTAL, ENGINEERING AND GROUNDWATER GEOLOGISTS

BILL CROMER (Principal and Director)

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More than thirty years' experience in domestic and larger-scale wastewater disposal and geotechnical investigations, over forty years' experience in hydrogeology, engineering geology and geology, and more than twenty-five years' experience in contaminated site assessments and geotechnical risk assessments.

QUALIFICATIONS

Bachelor of Science with Honours (Geology), University of Tasmania (1971)

Graduate Diploma of Business in Professional Management (1989)

AFFILIATIONS

Australian Geomechanics Society

Australian Institute of Environmental Health

Australian Water Association

Environmental Engineering Society

PROFESSIONAL HISTORY

1972 – 1981 Geologist, Engineering Geology and Groundwater Section,
Mines Department, Hobart

1981 – 1990 Principal, William C. Cromer Pty. Ltd.

1990 – 2000 Senior Consultant, Environmental & Technical Services Pty. Ltd.

2000 – Principal, William C. Cromer Pty. Ltd.

MERCHANDISE

Creator of Trench[®], a nationally-marketed computer application to aid in site assessment and system sizing for domestic wastewater disposal.

Designer, manufacturer and distributor Australia-wide of the Cromer Constant Head Permeameter, a field instrument for the measurement of soil permeability.





EXPERIENCE

WASTEWATER MANAGEMENT

General comment: I remain very active in providing consultancy services to a wide range of individual, corporate and government clients for site assessments and designs of on-site domestic and larger-scale wastewater management. Below are some of them.

- 1981 – present. Over thirty years' experience in site capability assessments of land for domestic wastewater disposal. Well over 1,200 sites assessed at individual and subdivisional level. Presented papers at state and national conferences.
- 1988. Prepared the Tasmanian *Septic Tank Code of Practice* for on-site assessment on behalf of the Tasmanian Division of the Australian Institute of Environmental Health (AIEH). Awarded the AIEH Industry Prize in 1988.
- 1996 – 1999. On AIEH subcommittee upgrading the *Septic Tank Code of Practice*. Ultimately was co-author on final draft of Code.
- 1996 – 1997. Detailed study of effect of domestic wastewater disposal into a shallow sandy aquifer at Lauderdale (at request of Clarence Council).
- 1999 – 2000. The development, part-ownership and commercialization for the Institute of *TrenchTM3.0*, a computer application for on-site wastewater management. *Trench* continues as an industry standard. Presented workshops to demonstrate *Trench* in Tasmania, Victoria and New South Wales.
- 1999 – present. The design, manufacture and commercialization of the Cromer Constant Head Permeameter to measure soil permeability for assessing sites for wastewater disposal.
- 2000. Wastewater assessment for the proposed Cockle Creek Ecotourism development in far southern Tasmania..
- 2000 – 2003. Cradle Mt. area. Site capability investigations (geological, geotechnical, hydrogeological, etc) and reporting on wastewater disposal options for existing and proposed tourism development
- Lake Lea area at Cradle Mt. Site capability investigations (geological, geotechnical, hydrogeological, etc) and reporting on wastewater disposal options for proposed tourism development.
- 1998 – 2002. Site capability investigations (geological, geotechnical, hydrogeological, etc) and reporting on wastewater disposal options for existing shack sites in northern Tasmania, for the Department of Primary Industries, Water and Environment. – in particular, NW, West, Central, Southern and NE Tasmania.
- Since the late 1990s, I remain very active in investigating and designing numerous on-site wastewater disposal systems for individual dwellings, tourism developments and communal developments (including retirement villages), in accordance with Australian New Zealand Standard 1547 (2000 and 2012) *On-site domestic-wastewater management*.
- On separate occasions since 2010, have presented wastewater issues at on-site wastewater workshops held in Tasmania by the Centre for Environmental Training (CET)
- Since 2012 have maintained a comprehensive website which includes various posts and downloadable discussion papers on wastewater issues, including designs for nonconventional beds and bottomless sand filters.
- 2015. Completed a major wastewater assessment and report for Tassal's fish processing facility at Margate.
- 2015 Conducted wastewater assessments on Tasman Peninsula for Tasman Council.
- 2016: completed a major repackaging and marketing of the Cromer Constant Head Permeameter. See a demonstration video on my [website](#), or on [You Tube](#).

Relevant publications relating to domestic wastewater management

Cromer, W. C. (1999). *TrenchTM3.0: An AIEH computer software application for managing on-site wastewater disposal*. Environmental Health Review, May 1999, pp23-25.

Cromer, W. C. (1999). *TrenchTM3.0: A computer application for site assessment and system sizing*, in Patterson, R. A. (Ed.) *On-site '99 – Proceedings of the On-Site '99*





Conference: Making on-site wastewater systems work. University of New England, Armidale, 13-15 July 1999, pp 85-88.

Cromer, W. C. (2001). Treating domestic wastewater in a shallow coastal sand aquifer near Hobart. *Proceedings of On-site '01 Conference: Advancing On-site Wastewater Systems* by R.A. Patterson & M.J. Jones (Eds). Published by Lanfax Laboratories, Armidale ISBN 0-9579438-0-6, 400 pages.

Cromer, W. C., Gardner, E. A. and Beavers, P. D. (2001). An improved viral die-off method for estimating setback distances. *Proceedings of On-site '01 Conference: Advancing On-site Wastewater Systems* by R.A. Patterson & M.J. Jones (Eds). Published by Lanfax Laboratories, Armidale ISBN 0-9579438-0-6, 400 pages.

Various posts and downloadable pdfs on wastewater issues on the [wastewater page](#) of my website www.williamccromer.com including

- A sample wastewater report
- Design
- Notes for Nonconventional Beds
- Design Notes for Bottomless Sand Filters
- Soil texture and wastewater loading rates
- Setback distances
- Flowchart for obtaining an approved Tasmanian wastewater system
- Flowchart for applying the Tasmanian Wastewater Code

HYDROGEOLOGY, GEOLOGY AND ENGINEERING GEOLOGY

General comment: I remain very active in providing consultancy services to a wide range of individual, corporate and government clients in the fields of hydrogeology and engineering geology. Below are some of them.

1970s

- Planned, managed and reported on a regional geological and hydrogeological assessment near Devonport, Tasmania.
- Conducted detailed hydrogeological studies at Seven Mile Beach in southern Tasmania, including groundwater modelling and computer simulation studies.
- Regional hydrogeological studies for town groundwater supplies on King Island, Flinders Island and the Tasmanian mainland, and the design and installation of town groundwater supplies at Swansea, Deloraine and Greens Beach.
- Mines Department representative on original interdepartmental committee advising on future land management issues at Seven Mile Beach.

1980s

- From 1980 to present, continue to provide consultant groundwater advice to Tasmanian water boring companies and individual clients.
- Designed and installed groundwater and surface water irrigation systems for the Tasmania, Royal Hobart, Greens Beach and Llanherne Golf Clubs.
- Consultant geologist to the oil exploration industry, with particular reference to off-shore drilling in Bass and Taranaki (NZ) Basins, for Bass Strait Oil and Gas Limited, and Amoco Oil.
- Exploration consultant to various Tasmanian and mainland mineral exploration companies, mainly in a managerial capacity involving the generation of geological concepts and prospectivity assessments, property acquisition (purchase and options agreements) and reporting (including Environmental Impact Statements).

1990s

- In the early 1990s, was engaged (as Senior Consultant at ETS) by Clarence City Council to investigate groundwater conditions and potential contamination issues at the Lauderdale tip in southeastern Tasmania, and subsequently co-authored an environmental management plan for the site.
- In the late 1990s, was engaged (as Senior Consultant at ETS) by Clarence City Council to investigate groundwater conditions and potential contamination issues at Cremorne and Pipeclay Lagoon in southeastern Tasmania.
- In 1999, attended the *Groundwater flow, particle tracking and contaminant transport modelling* course run by Mike McDonald and Dan Morrissey at RMIT





2000s

- Geotechnical risk assessments for numerous residential subdivisional proposals and individual allotments, and site investigations for corporate clients including Pasminco Risdon, Hobart International Airport, Temco Bell Bay, Copper Mines of Tasmania, Henty Gold Mine.
- Geotechnical investigations for tailings dams for the Henty Gold Mine, and for foundations conditions for construction works for Copper Mines of Tasmania.
- Geotechnical investigations and site classification for residential footings design in accordance with *Australian Standard 2870* (1996 and 2011). Was a member of an Australian Geomechanics subcommittee reviewing guidelines for AS2870 practice in Tasmania.
- In 2002 was involved in installing a groundwater extraction and monitoring system in coastal sands for the Cockle Creek ecotourism development in southern Tasmania.
- Between 2004 – 2009, was engaged by Hobart City Council to regularly monitor groundwater occurrence and quality at McRobies Gully tip
- In 2003, was commissioned by Mineral Resources Tasmania to review and publish the hydrogeology of the Nine Mile Beach near Swansea on Tasmania's east coast.
- In 2004, installed a groundwater system in coastal sands for an emergency water supply for Tasman Council at Port Arthur.
- In 2005, was commissioned by Walker Corporation to review the hydrogeology of the Lauderdale area as part of a consultancy group involved with the marina development.
- In 2006, was engaged by Mineral Resources Tasmania to review and publish the hydrogeology of the Seven Mile Beach spit near Hobart.
- In 2006 was engaged by an interstate developer to investigate groundwater possibilities for a tourist development on Tasman Peninsula.
- In 2006 was invited to quote to provide independent groundwater advice to the Water Resources Division of the Department of Primary Industries and Water, Tasmania.
- In late 2006 was engaged to review effluent recharge issues in the Seven Mile Beach aquifer.
- In October 2006 advised on creating a recreational lake from shallow groundwater at Tarraleah in central Tasmania. Lake was subsequently excavated.
- In March 2007 was engaged by an interstate developer to investigate sustainable groundwater and surface water management incorporating aquifer storage and recharge (ASR) of treated wastewater, for a major golf development in northern Tasmania.
- In September 2007 produced for Gunns Limited an *Initial Hydrogeological Assessment* of the proposed Gunns Pulp Mill at Bell Bay.
- In 2008 installed groundwater monitoring bores at wastewater treatment plants for Sorell Council in southeastern Tasmania.
- In April 2008 reported on groundwater possibilities for the Freycinet Golf Club on Tasmania's east coast.
- In April 2008 reported on heavy metal contamination of potable groundwater for a major Tasmania tourist development.
- In December 2008 explored for and obtained groundwater supplies from two bores for the Tarraleah township water supply in the central highlands.
- In November 2009 produced a Hydrogeological review for Hydro Tasmania for the Bell Bay Power Station at Bell Bay.
- 2009 – present. Engaged by Clarence City Council to investigate and report on many geotechnical issues (coastal erosion, slope stability, etc) in the municipality.

2010s

- remain engaged as advisor to Clarence City Council in relation to managing high water tables in a shallow coastal sand aquifer at Lauderdale near Hobart.
- Appointed as hydrogeological consultant to Venture Minerals' Mt. Lindsay Project on Tasmania's west coast. At the same time engaged the services of Hocking et. al. Pty. Ltd. for numeric groundwater modelling for the Project.
- Engaged by Shree Minerals to produce a hydrogeological review of the Nelson Bay Magnetite Mine Project
- Engaged by Glenorchy City Council to conduct hydrogeological drilling to assess aquifer storage and recharge





- Appointed as hydrogeological consultant to Venture Minerals' Stanley River Project on Tasmania's west coast.
- Appointed as hydrogeological consultant for a major proposal to mine aeolian sands on Tasmania's northeast coast.
- Appointed as hydrogeological consultant for a mining company at Zeehan on Tasmania's west coast
- Provided hydrogeological advice to Shree Minerals in northwest Tasmania
- 2014 – present. Engaged as consultant to Kingborough Council in relation to monitoring high water tables in vulnerable coasts in SE Tasmania.
- 2015. Engaged by BMD to provide detailed geotechnical data (test pitting, DCP profiling, diamond drilling) for the Electrona – Blackmans Bay sewer upgrade
- 2015. Diamond drilling and geotechnical advice to Forico at the re-commissioned Hampshire Woodchip Mill
- 2015-present. Have teamed up with highly-regarded geotechnical engineer Tony Miner from Miner Geotechnical in Victoria, and have collaborated with him on several Tasmanian projects.
- 2015. Hydrogeological modelling of the Port Latta Regional Waste Facility for Circular Head Council
- 2015 Engaged by Meander Valley Council to provide advice on landslides in the Launceston area. In collaboration with Tony Miner.
- 2015 Engaged by George Town Council to provide advice on landslides in the Hillwood area. In collaboration with Tony Miner.
- Investigated several instances of house stress due to foundation conditions in Hobart and Launceston.
- 2016 Commissioned by the Tasmanian Department of Premier and Cabinet to provide reporting guidelines for geotechnical practitioners operating in Tasmania. Continuing.
- 2016 Commissioned by Mineral Resources Tasmania to help produce a series of *Geoguides* about various rock types for geotechnical practitioners operating in Tasmania. Continuing.
- 2017. Commissioned by Downer to undertake geotechnical drilling of foundation conditions at Australia's oldest bridge at Richmond in southern Tasmania.
- 2017. Commissioned by Downer to undertake geotechnical drilling of foundation conditions at its new asphalt plant in Flagstaff Gully, Hobart.
- 2015 – present. Prepared coastal inundation and coastal erosion assessments of private individuals in southern Tasmania
- 2017. Invited to become one of a working group of consultants involved in data collation for climate-change induced coastal issues in southern Tasmania.
- 2017. Part of [TASMARC](#) coastal management team.
- 2014 – present. Conducted peer reviews of geotechnical reports for various consultants operating in Tasmania.

Relevant hydrogeological publications

Cromer, W. C. (1979). Groundwater from Coastal Sands at Greens Beach, Northern Tasmania. Geol. Surv. Bull. 57, Dept. Mines Tasmania.

Cromer, W.C. (1993). Geology and Groundwater Resources of the Devonport-Port Sorell-Sassafras Tertiary Basin. Geol. Surv. Bull. 67, Dept. Mines Tasmania.

Cromer, W. C. and Leaman, D. E. (1980). Comparative Pump Test Analysis of a Multiple Bore Array in a Thin Unconfined Aquifer. J. geol. Soc. Aust. V27, pp105-116.

Cromer, W. C. (2003). The geology and groundwater resources of Nine Mile Beach, eastern Tasmania. Unpublished report, Mineral Resources Tasmania 2003/07.

Cromer, W. C. (2006). A hydrogeological review of the Seven Mile Beach spit, eastern Tasmania. Unpublished report for Mineral Resources Tasmania.

A further 100 or so unpublished and published reports by Bill Cromer are available for viewing on Mineral Resources Tasmania website www.mrt.tas.gov.au. William C Cromer also provides copies of unpublished reports in confidence to Mineral Resources Tasmania to enhance the hydrogeological and geotechnical database of Tasmania.





SITE CONTAMINATION

General comment: I'm moving out of providing site contamination consultancy services. Since July 2015, a person certified under the Site Contamination Practitioners Australia (SCP Australia) scheme or an interstate auditor must be used to conduct or review most contaminated site assessments in Tasmania. I'm not accredited and don't want to be. However, I'm happy to do CSM reporting (site history, conceptual site models and proposed initial sampling programs) and submit the report to an accredited practitioner for review. Here's some of the work I've done previously.

Over twenty-five years' experience in contaminated site assessment. Previously a member of a working group set up by the Contaminated Sites Division of the Tasmanian Department of Primary Industries, Water and Environment to investigate regulation and auditing of site contamination practitioners in Tasmania. Also a previous member of a Reference Group to advise the Environment Division of the Department of Tourism, Arts and the Environment on a Management System for Underground Petroleum Storage Systems.

Planned, and conducted or supervised, site contamination assessments or remedial works for many companies, local councils and individuals, including but not restricted to the following:

- Tioxide Australia, Heybridge: Site contamination sampling (soil and groundwater) at former factory site.
- Tioxide Australia Pty. Ltd. Heybridge: Preliminary site assessment, clean-up and remediation of lead contamination of soils at former pistol club on company land.
- Echo Remediation Pty. Ltd., Heybridge: Assessment and reporting of former tip site on Minna Road.
- Echo Remediation Pty. Ltd., Heybridge: Assessment and reporting of leachate issues at silica dump at Stowport.
- Cascade Brewery, Hobart. Investigation of potential or actual site contamination, including sampling, removal of several underground fuel tanks, reporting.
- Hydro Electric Corporation. Assessment and in some cases remediation of various operating switchyards and decommissioned depots around Tasmania (including Lake St. Clair, Rosebery, Kingston, Tarraleah, Oatlands).
- Former scrap metal premises, Hobart. Assessment and remediation of premises, establishment of background metal concentrations overprinted by effects of airborne lead particulates on surrounding areas.
- Continues to establish the site contamination status of various operating or former service stations.
- Commissioned by Property Tasmania to conduct a contamination assessment of a commercial/industrial site in central Hobart. Hydrocarbon and metal levels were too high for a future more sensitive use, and local groundwater contamination was inferred.
- Land leased by North Forest Products in Burnie was investigated for metal and hydrocarbon contamination.
- The State Fire Service requested an assessment of industrial land prior to relocating its northern Tasmanian facilities. Localised hydrocarbon and metal (mercury) contamination was remediated to a level appropriate for its intended use.
- An industry client requested an assessment of the contamination status of land it intended to purchase for an extension of industrial use.
- On behalf of EBS Consultants Pty. Ltd. of Melbourne, completed a detailed site sampling programme at the now decommissioned Tioxide site near Burnie.
- Planned and conducted detailed investigations at the Commonwealth Industrial Gases site in Hobart. Extensive hydrocarbon contamination from a leaking underground petrol tank required the removal of some 1,000 cubic metres of soil. Remediation was completed and the property able to be sold to Purity Supermarkets.
- On behalf of EBS Consultants Pty. Ltd. of Melbourne, conducted a soil and groundwater sampling programme at Capco, Bell Bay.
- Other site contamination assessments included a former Oast House at New Norfolk (pesticides), a hop kiln at Boyer, an abandoned quarry at Brighton, subdivisional land at Glenorchy, a waste disposal site for Australian Paper at Burnie, and residential land at Rokeby.
- Between 2004 - 2009 engaged by the Hobart City Council to monitor hydrogeological and leachate conditions at the McRobies Gully tip.
- Investigated and remediated contamination on several commercial properties in and near Hobart and Launceston, including Office Works (1999) and Harvey





Norman (1999), Incat (2008), DJ Motors (2009), Bradken Launceston (2009), Sorell Council works depot (2009).

- Investigated contamination for Harvey Norman sites in Launceston (2001) and Burnie (2004)
- Since 2000 engaged by Vos Constructions to advise on or investigate various site contamination issues at construction sites around Tasmania. Drafted site contamination protocols for the company.
- In 2007 conducted detailed site contamination and hydrogeological investigations at the former Tioxide factory site near Burnie for Echo.
- Since 2009 engaged by LNG Refuellers Pty Ltd to investigate the contamination and geotechnical status of various refueling sites around Tasmania.
- 2009 – present: continue to investigate and report on site contamination issues for a wide range of private and commercial clients.

ENVIRONMENTAL MANAGEMENT

- Conducted detailed site investigations and devised wastewater irrigation strategies for North Forest Products at its Hampshire chipmill, for United Milk Tasmania at its Wynyard, Spreyton and Legerwood plants, and for Lactos at Burnie.
- Assisted in the site investigations for, and reporting of, environmental management programmes for many Tasmanian based companies including J. Boag and Son, Cascade Brewery and Cascade Beverages, K & D Brick, Lactos, North Forest Products (Hampshire, Long Reach and Triabunna), Gunns Limited, United Milk Tasmania (Wynyard and Legerwood), and local government.
- Conducted and reported on environmental audits for Cascade Brewery and Pasminco Rosebery.
- Conducted a regional environmental audit of former activities of the Hydro Electric Corporation in the central lakes district of Tasmania, for the purposes of land divestment.
- Conducted and reported on detailed and comparative assessments of possible regional refuse disposal sites for a municipal council in southern Tasmania.
- Conducted and reported on a wastewater management plan for Tassal at Margate and north of Triabunna

PERSONAL DETAILS

Date of birth	26 December 1948
Nationality	Australian
Language	English
Permanent residence	Hobart, Tasmania, Australia

Bill Cromer

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