



Greg Hoxley

PRINCIPAL HYDROGEOLOGIST

Summary of Competencies

In Greg Hoxley is an experienced and senior hydrogeologist with over 25 years experience in groundwater and hydrogeology. He has undertaken a wide range of groundwater and salinity related projects for a wide range of public and private sector clients.

He has worked within government and the private sector during this period

Employment Synopsis:

Rural Water Corporation of Victoria: 1987 to 1995 - Senior Hydrogeologist

Sinclair Knight Merz: 1995 to 2013 - Principal Hydrogeologist

Jacobs 2013 - Present Principal Hydrogeologist

Experience

Groundwater Modelling

Greg Hoxley is a highly experienced groundwater modeller. He has developed and used groundwater models for a wide variety of situations and used a number of different modelling programs and software. He is proficient in writing programs in FORTRAN and has written models as well as made significant enhancements to existing models. He has been involved in modelling for over 25 years and has worked with most of the widely available and recognised groundwater and sub-surface models in use in the industry. He has both developed models and supervised large and complex modelling projects. He is proficient in the use of the following modelling programs:

- MODFLOW
- MIKE-SHE (includes MIKE-11)
- SUTRA
- FEFLOW
- HELP
- VLEACH
- AQUIFEM-N

He has also written a large body of special programs to pre and post process model data for a variety of models. He has been a member of the Groundwater Modelling Sub-committee of the Groundwater Group for the (then) Murray Darling Basin Commission and he was part of the expert panel that helped to develop the Guidelines for Groundwater Modelling published by the Murray Darling Basin Commission.

He has developed many models for a wide range of clients and purposes. Significant modelling projects include the following:

Nyah to the SA Border Hydrogeological Models

This project involved developing a suite of nine models to determine the impact of irrigation on groundwater level and then on groundwater discharge to the Murray River. The project was significant as it was the first large scale application of models to a natural resource issue in the Murray Basin and helped developed the rules for a salinity offset scheme involving irrigation.

CURRENT POSITION

Principal Hydrogeologist

QUALIFICATIONS

Bachelor of Science (Honours)

EXPERTISE

- Groundwater Modelling
- Salinity (Dryland and Irrigation)
- Landfill
- Mine Dewatering and Water Supply
- Environmental Effects Statements / EIS
- Groundwater Resources and Management
- Waste Water Disposal
- Groundwater Quality and Contamination

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Barwon Downs Aquifer

The Barwon Downs aquifer provides a major source of water for Geelong City. It is particularly important in drought periods. This project developed a 5 layer model of the whole aquifer system that included scenario simulation for 100 years. This model has been used as the basis for setting license conditions for the use of the resource.

Riverine Plain and Mallee Groundwater Models

These models were developed as part of a series of models that covered the whole of the Murray Basin. Whilst the models were initially developed by a number of different organisations, the finalisation of the models and production of final reports were management by Greg Hoxley. These models provided predictive options for groundwater management purposes across large parts of the Murray Basin.

Koo Wee Rup Groundwater Supply Protection Area

This model simulates the impact of extended groundwater pumping from aquifers in the declared Koo Wee Rup Groundwater Supply Protection Area. The model has been used to define the impacts of extraction and also to evaluate the potential for injection of treated effluent into the aquifer to reduce the impacts of pumping.

Ord River Irrigation Areas - Stage 1 and Stage 2

Irrigation of the Ord River region was studied by the major project. The existing and proposed irrigation areas were modelled to determine the likely groundwater response to irrigation and potential environmental effects resulting from expanded irrigation. The models developed formed a key part of the PER/CER assessment of potential impacts.

South Goulburn Plain Model

The south Goulburn Plain area was studied using a model that evaluated the potential for pumping of groundwater from deep confined sediments to reduce the rate of rise of the watertable in the area. Increasing pressure is being placed on groundwater in the area and the model provided information on likely benefits for shallow groundwater systems resulting from increased deep groundwater use.

Wool Scour Site, Perth

Modelling of the progress of a plume of contaminated groundwater from an industrial site in Jandakot, Perth

Leachate Modelling, Thailand

Modelling of the movement of leachate through the unsaturated zone from two proposed landfills in northern Thailand.

Salinity (Dryland and Irrigation)

Greg Hoxley has over 25 years experience in salinity and water quality issues. He has comprehensive experience in all aspects of salinity in Australia. His experience ranges from detailed technical studies of soil water movement and solute behaviour, through to strategic advice relating to State and Federal policy on salinity management and plans. He has experience in all aspects of salinity, both dryland and irrigation. He has been involved in detailed technical assessments of salinity development, such as modelling of groundwater and solute movement. He has provided advice on salinity and water quality issues to all regions in Victoria and many others across

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Australia. He was a key note speaker at the Local Government Salinity Summit in 2001. He has written and contributed to a number of papers on salinity and salinity management. Governments frequently seek his advice on salinity technical aspects, as well as for policy development. He has been closely involved in the development of salinity trading regimes and is fully aware of the challenges and issues associated with the use of market based techniques to manage salinity.

Key projects that demonstrate his experience are:

Goulburn Broken Plains Study

This study was a benchmark study for an area of northern Victoria that has predicted high salt loads in the next 30 years. The study provided estimates of groundwater trends and the patterns of future salt load for the next 50 to 100 years. A key development of this study was a modification to the MODFLOW groundwater model and coupling of a soil water salt model. This modelling development enabled the predicted salt impacts on vegetation growth to be incorporated into salinity planning for the first time.

Lexton Salinity Study

The Lexton Salinity model was developed to assess the impacts changed vegetation on groundwater recharge and then of the potential discharge to streams in the Lexton area of northern Victoria. This project evaluated the likely impacts of a range of vegetation management options and was one of the first models to look at the whole water balance for a dryland salinity area. The model identified the potential advantages of break of slope tree plantations and highlighted the relative effectiveness of perennial pasture.

Nyah to the SA Border Salinity Management Plan Support

This project developed the salinity accounting mechanism that enables the impact of salinity caused by irrigation in the Murray Mallee to be accounted. This project set a national benchmark for the innovative use of polluter pays principles combined with natural resource management objectives. Restrictions were established and market mechanisms used to minimise the environmental impacts of irrigation expansion.

Lake Toolibin Recovery Project

This project involved the assessment and planning for pumping of groundwater to protect and recover Lake Toolibin (in WA) from saline discharge. Lake Toolibin has been identified as a key environmental asset for the region, which was threatened by salt. Engineering options were required to rescue the lake. This study identified the potential for groundwater pumping to protect the lake and environs and provided data for design of a disposal system.

Kerang Lakes Area Salinity Management Plan

The Kerang Lakes area contains many important wetlands threatened by salt. This project involved providing hydrogeological advice and support for the development of a community management plan for the area. This involves working closely with the community to educate and assist the development of an effective salinity management plan.

Review of the Salinity and Drainage Register

This project involved the review of all of the items listed on the Murray Darling Basin Commission Salinity and Drainage Register that contribute or reduce salt in the Murray River. The MDBC required a review of all of the items and priority actions developed from the review. This review set the technical basis for policy development of a new register under the Basin

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Salinity Management Plan

Murray Darling Basin Salinity Audit

As part of a regular review of salinity, the MDBC commissioned an audit of salinity in the basin. This project developed the audit data for Victoria. In addition, it set the primary method by which other regions would audit potential future salinity in the Basin. The method developed for this project was then used as the basis for the Salinity Theme of the National Land and Water Audit.

Other key projects include:

- > Broken and North Goulburn Plains Project
- > Salinity Management Options for the Glenthompson Area
- > Salinity Risk Assessment in the Loddon-Campaspe
- > Salinity Management Options in the Gerangemetete Area
- > Lake Tutchewop Options Study
- > Salinity Investigation and Assessment, Riverine Plain
- > SunRISE 21 Land Capability Assessment
- > Implementation of Salinity Mitigation Works
- > Tragowel Plains Irrigation Impacts (Mike SHE)
- > Shepparton Irrigation Region Salinity Audit
- > Lindsay River Groundwater Interception Scheme
- > Feasibility of Artificial Recharge at Barwon Downs
- > Murray Basin Hydrogeological Map Series
- > Managing Victoria's Growing Salinity Problem
- > Wimmera Hill Country management
- > Review of Dryland LWMP for NC Vic
- > Lower Avon Richardson Salinity Study
- > Hydrogeological Support for Avoca Dryland
- > Environmental Assessment of Bullock Swamp
- > Avon Richardson Salt and Water Balance
- > Action Plan for Kooloonong- Natya Landcare Group
- > Stream Salinity Monitoring, Gelnelg
- > Kerang Lakes REALM Model Update
- > Upper Loddon REALM model update
- > Campaspe REALM Model Update
- > Goulburn Broken REALM Model Update
- > Wimmera RCS Review and Renewal
- > Integrated NRM plan of the Lower Murray Region
- > Development of Catchment Indicators for Victoria
- > Catchment Categorisation
- > Guidelines for Disposal Basins
- > Salinity Risk Assessment in the Loddon Campaspe
- > Coordination of Second generation SMP for Mallee
- > Capacity of Local Government in Dryland Salinity
- > Wimmera Salinity Trial Catchment Study
- > Land Use Suitability & Capability
- > Hydrogeological Investigations for Wimmera SMP

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> Local Govt Planning Support Tool

Landfill

Greg Hoxley has considerable experience in landfill leachate impacts and management. He regularly is called as an expert witness in hearings related to landfill leachate effects. He is experienced in many aspects of leachate generation and management for landfills, including modelling of leachate migration and impacts. He provided the groundwater component of the only EPA approved landfill operators course in Victoria.

Relevant Experience includes:

Ondit Quarry Landfill Assessment

This project involved providing advice and opinions to the Victorian EPA on the likely impacts of a landfill proposed for a quarry in western Victoria. The EPA opposed the landfill and the matter was subject to a hearing. This involved appearing as an expert witness on behalf of the EPA.

Torquay Landfill

This project involved undertaking the technical assessment of groundwater conditions and potential for leachate impacts for a landfill near Torquay, Victoria. Site investigation and characterisation was undertaken and a review of potential leachate migration and possible impacts was undertaken.

Margate Landfill

The Margate landfill in southern Tasmania serves a significant population south of Hobart. The site required expansion to cope with future needs. The study involved a wide range of services, from assessing groundwater conditions at the site, defining clay and soil permeability, negotiation with the regulator about performance standards and ongoing monitoring and assessment of the impacts of past landfill activity. The site is geologically complex and has a long history of landfill activity that complicated the study.

Bairnsdale Landfill

This project involved providing specialist review services for a proposed landfill at Bairnsdale. The site was of special interest as it was located in an area of high quality groundwater and near sensitive environmental features.

Kerang Regional Landfill

Providing expert witness testimony for the Kerang Shire (Victoria) in successfully dismissing and appeal against a proposed regional landfill site.

Launceston Landfill

Assessment of leachate generation rates at an existing and proposed extension of a landfill for Launceston (Remount Rd site).

Corangamite Regional Landfill

Hydrogeological investigations for the proposed Corangamite Regional Landfill at Cobden. This work involved the assessment of alternative sites and a full hydrogeological and hydrological assessment of the preferred site. Included in this assessment was numerical modelling of leachate migration through the unsaturated zone and an estimate of the time delay in any impact being seen at the water table.

Lorne Landfill Leachate Study

The existing landfill at Lorne required a review of operations as part of an

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overall analysis of the landfill operations for Surf Coast Shire. This investigation into the leachate generation and flow analysis of the Lorne Landfill included prediction of leachate generations rates and rates of escape to the environment.

Proposed Werribee Proscribed Waste Landfill

Provided specialist advice to Southern Rural Water regarding the potential groundwater impacts of the proposed proscribed waste landfill at Werribee. I attended the hearing regarding this landfill and was asked to provide expert opinion on the groundwater impacts by the panel.

Scottsdale Landfill

Provided advice relating to the Scottsdale Shire (Tasmania) on leachate generation, containment and migration for the proposed new landfill for the Shire. This site was technically difficult due to the very high rainfall at the site.

Mine Dewatering and Water Supply

Greg Hoxley has significant experience in assessing groundwater requirements from mining purposes and providing de-watering assessment and advice. He has particular experience in the Mineral Sands industry where he is familiar with the process requirements of mineral sands mines and how these interact with groundwater. He has been involved in water balance assessments for mines, design and installation of groundwater pumping systems, environmental assessment of mine water management, and statutory reporting requirements and exploration assessment. This has included the supervision of groundwater testing systems for pumping and injection of groundwater. He has been involved in the assessment of acid drainage issues and management tailings pond leakage.

Relevant project experience includes:

Wemen Mine Water Supply

Conceptual and detailed design of a groundwater pumping system for water supply for a Mineral Sands Mine in NW Victoria. This included field testing of aquifer capacity, numerical modelling of groundwater response and design of a wellfield and headworks system to provide water for a dredge mining operation.

Prungle Mine Environmental Assessment and Pre-feasibility Assessment

This project involved the pre-feasibility and environmental effects assessment for a proposed mineral sand mine in Western NSW. This project involved field-testing of aquifer parameters, numerical modelling, environmental impact assessment, water balance modelling and liaison with regulatory agencies. The project involves significant dewatering of an orebody to enable mining, combined with disposal of water.

Cobar Water Infiltration Study

As part of the proposed expansion of a block fall mine near Cobar, A study was undertaken to estimate the peak inflow rate to underground workings from rain events. This involved sophisticated numerical modelling to evaluate the likely peak infiltration and flow rate through a fractured rock system under a high Annual Return Interval rain event. This work was used to assist the design of a pit pumping system for the mine.

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Marong Open Cut Groundwater Study

As part of the Environmental Impact Study of the proposed Marong open cut coal mine in SW Queensland a groundwater model was developed. My role in the project was to provide review and sign-off on the model development and predictions. The model conceptualisation was complex as a result of nearby groundwater users and the need for significant dewatering.

Fiji Gold Mine Water Infiltration Study

This project involved estimating the infiltration of surface water and rainfall into a hard rock gold mine in Fiji. The project was a desk study based on field data collected by the client and involved analytical analysis of inflow response to rainfall events to assess the need for mine dewatering.

12 Mile Mineral Sands Mine

This project involved identifying a high volume water supply for a proposed mine in western NSW. The project included field studies and drilling in an attempt to find a groundwater supply and environmental impact assessment of the proposed water management system.

Environmental Effects Statements / EIS

Greg Hoxley has had considerable experience in the development of EES/EIS documentation and in undertaking studies as part of EES/EIS. He has been involved in all aspects of such studies, from detailed technical assessment of potential environmental effects of proposed developments, through to overall management of the preparation of statements, and on to representing developments at hearings and providing expert testimony. He is familiar with the statutory process for environmental effects statement in many States.

Relevant project experience includes:

Mildura Marina EES

This project involved developing the EES documentation for a proposed Marina Development in northern Victoria and then presenting the project to a Panel Hearing. This project involved many specialist studies, including salinity studies.

Ord Irrigation Project PER/CER

This project involved the development of documentation for environmental review for the proposed Ord River Stage 2 Irrigation Development. It involved technical assessment of the nature of environmental impact and preparation of reports for public review of the proposed development.

Marong Power Station EIS

This project involved providing assistance with the groundwater aspects of a proposed expansion to a power station and coal mine in southern Queensland. The project was highly controversial and required careful consideration of potential effects.

12 Mile Mineral Sand Mine EIS

This project involve the assessment of a range of water related impacts for a proposed mineral sands mine in western NSW. The project is near a protected area and the project tasks involved ensuring that the design and development of the mine did not disturb adjacent sensitive areas.

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Groundwater Resources and Management

Greg Hoxley has considerable experience in groundwater resource identification and management. He has been involved in groundwater management issues for over 25 years. He has contributed to many of the key technical aspects of groundwater policy in Victoria over the years. He has represented Victoria on the National Groundwater Committee. He has undertaken many projects in groundwater resources and management. These range from field data collection and resource evaluation, through to basin scale resource assessments. He has provided a number of key technical documents for the assessment and management of groundwater resources in Victoria. He developed the method by which groundwater basin Permissible Annual Volume is determined and led the project that developed the first estimate of over-committed groundwater basins in Victoria. He is familiar with groundwater legislation and how this relates to groundwater management. He has provided technical advice to regulating agencies on groundwater issues.

Relevant Project Experience includes:

PAV Determinations

This project involved developing a method that could be applied across a range of groundwater basins with different data availability to assess the likely long term yield from the basin. The project provided the underlying methodology that has been used to determine a first pass estimate of the yield of all Victorian Groundwater Management Areas.

Risk Mapping

This project developed a series of maps for the whole of Victoria that define the risk of groundwater contamination from different land uses. The project provided the first comprehensive assessment of contamination risk for the State. The maps provide resource managers with key information on the nature and threats to the groundwater resource. The project has provided very important information for the management of groundwater quality. This project involved the development of a customised method for defining risk and mapping it across the entire State. It included numerical modelling of contamination movement and collation of a large number of spatial data layers.

Beneficial Use Maps

Beneficial Use maps were prepared to assist the implementation of the State Environment Protection Policy "Groundwaters of Victoria". These maps provide a ready indication of the groundwater Beneficial Use category, which can then be used to set policy requirements for an area. These maps are a key part of managing groundwater resources

Koo Wee Rup Water Supply Protection Area

This project involves the assessment of the likely yield from the aquifers of the Koo Wee Rup Water Supply Protection Area in southern Victoria. The aquifer system is potentially under threat from multiple degrading sources. This study has included numerical modelling, groundwater chemistry sampling and assessment and technical advice on allocation and trading policy

Barwon Downs Aquifer Evaluation

This project involved the assessment of the long term yield from the Barwon

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Downs Aquifer. This aquifer is a key water supply for the city of Geelong. The project included modelling, field studies, and assessment of environmental impact - especially the potential impact on streams and wetlands. This information was used to support a licence application.

Septic Tank Impact Assessments

Many small townships in coastal areas of Victoria rely on septic tanks for effluent disposal. This study looked at the groundwater contamination risks and likelihood for a number of small towns in sandy coastal areas of Victoria. The project identified a variety of contamination sources through field investigations and analysis of groundwater chemistry.

Latrobe Valley Groundwater Decline Study

Large volumes of groundwater are pumped from aquifers in the Latrobe Valley of southern Victoria, for a number of uses. As a result of concern about potential impacts of the extraction a study of aquifer response was undertaken. This study used modelling to assess the likely long-term trends in regional groundwater levels and to feed into analysis of environmental effects of large scale de-watering of aquifers.

Victorian Hydrogeological Mapping Series

This project has provided valuable maps of the groundwater resources of most of the State in hardcopy format that can be used by a variety of groups in the community to assist in the understanding and use groundwater.

Southern Rural Water Hydrogeological Maps

This project prepared electronic, seamless, hydrogeological maps for southern Victoria. This ground breaking project defined a new standard for groundwater mapping in Victoria.

National Groundwater Information System

Development of the framework of a national groundwater information system for the Bureau of Meteorology and the National Water Commission.

Cumulative Effects of Mining on Groundwater

Development of a national framework for assessing the cumulative effects of mining of groundwater. This framework provides for the first time a national approach to cumulative effects.

Hawkesdale Groundwater Resource Appraisal

Development of a groundwater resources appraisal for the Hawkesdale area of Southern Victoria. This area is a key groundwater development area and has extensive interactions with rivers and other aquifer systems. This complex study was considered a benchmark for the handling of climate change impacts on groundwater resources planning

Victorian Aquifer Framework

Formation of a framework for naming and defining aquifers in Victoria. This framework provides a coherent aquifer description and naming scheme for the first time for the whole State.

Waste Water Disposal

Greg Hoxley has considerable experience in issues associated with disposal of treated effluent to land. Irrigation with treated effluent is the preferred disposal option across the nation, yet this must be done with care to avoid

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unwanted contamination of groundwater. Greg has had considerable experience in all groundwater-related aspects of effluent disposal to land, from field investigations and data collection through analysis and reporting, on to presentation of expert statements at hearings. He has broad experience in many aspects of irrigation planning, design and impact assessment.

Relevant project experience includes:

Waste Water Injection - Koo Wee Rup

Modelling of the potential impact of waste water injection into aquifers in the Koo Wee Rup area of Victoria, for Melbourne Water. This project involved assessment of options for disposal of treated effluent for the Pakenham STP in eastern Victoria. The area suffers from over extraction of groundwater and the option of injection of treated sewage was considered by numerical modelling of the aquifer system.

Lancefield Effluent Disposal Site

Investigation of the suitability of land near Lancefield (central Victoria) for irrigation disposal of effluent. This study involved the evaluation of geological, hydrogeological and soil properties for three sites with a concept design for the preferred site being developed.

Wool Scour Effluent

Investigations of the potential for disposal of effluent from a wool scour site near Ararat, Western Victoria. A proposed wool scour plant site was evaluated for suitability for land based disposal of effluent. Site investigations were conducted and a site water balance prepared.

Mildura Effluent Disposal

Provision of advice to the Victorian Environment Protection Authority on the impacts of proposed irrigation of treated effluent near Mildura.

Cobden Effluent Disposal

Investigation into the suitability of land for effluent disposal near Cobden, Victoria. An existing sewage treatment plant was disposing to a near-by stream and was required to relocate disposal to land. The investigation involved the characterisation of the soils, irrigation potential and preliminary design of the irrigation site.

Melton South Golf development

Assistance with the investigation, evaluation and reporting of the potential impacts of a proposed golf development at Melton South. Included Panel hearing attendance and presentation of expert opinion.

Wallan Effluent Reuse Scheme

Assessment of the potential effects of proposed effluent disposal to land from the Wallan STP. This project involved field data collection, analysis, modelling, assessment of nutrient and salinity effects and threats and presentation to a Panel Hearing.

Groundwater Quality and Contamination

Greg Hoxley has experience in undertaking analysis and assessment of groundwater quality and contamination issues. He has been involved in a number of studies that have assessed the potential for contamination to develop or migrate in groundwater. He has experience in defining and

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supervising site data collection, in QA/QC protocols and chemical handling issues, evaluation and interpretation of site data, modelling of contaminants in soil and groundwater, assessment of contamination risk, and policy evaluation.

Relevant Experience includes:

Pesticide Contamination from Irrigation

This project was involved major site sampling programs to determine the likely occurrence and risk of groundwater based contamination from pesticides in irrigated areas. The study involved detailed field studies and site investigations, groundwater and soil sampling and testing, analysis of results and assessment of risk of contamination of surface and groundwater.

Ballarat and Geelong GMP Site Assessment

This project involved the assessment of the extent and nature of contamination at two former Gas Manufacturing Plant sites. This involved site data collection, analysis of results and characterisation of contamination.

Richmond Site Assessment

This project involved a former industrial site in Richmond that had TCE contamination. Tasks included assessment of field data, planning of data collection, review and assessment of results, design of modelling program.

Redevelopment of former Salt Works Site

This project involved providing specialist advice and interpretation to the Auditor for the site on the salinity issues associated with redevelopment of the site.

Review of modelling - Site Rehabilitation, Adelaide

This project involved undertaking a specialist review of numerical modelling done for a hydrocarbon contaminated site in Adelaide.

Groundwater contamination by Arsenic, South Australia

This project involved the design of field collection programs and analysis of groundwater and soils results for a rail depot in South Australia that had significant Arsenic contamination in soils. The site was within the reach of an urban water supply bore.

Groundwater Contamination, Hobart

This project involved the assessment of widespread contamination of a former rail yard by a variety of contaminants. The project included modelling of groundwater plume migration and assessment and review of potential consequences. This resulted in a revised field data collection program and long term monitoring.

Site Assessment, Northern Territory

This project involved the assessment of potential heavy metal contamination in a site in the Northern Territory. It included design of field data collection, site supervision, data analysis and reporting.

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Other Competencies

- > Trained and accredited Auditor for ISO9000 series Quality Assurance Systems
- > Proficient FORTRAN Programmer
- > Experienced in IT system management and strategic evaluation
- > Experienced in Database design and functional specification
- > Able to write HTML code and build web sites
- > Experienced in operation and maintenance of UNIX based computers
- > Experienced manager of people and teams

Language: English

Papers and Presentations

- 1988 "Hydrogeology of the Mallee Tract of the Murray River" Co-author with R. Thorne. Presented to Murray Basin '88 Conference, Canberra.
- 1990 "Groundwater Resource and Salinity Management by Hydrogeological Mapping in the Murray Basin" Co-author with W.R Evans, R.M Williams, S.R. Barnett. Presented to International conference on Groundwater in Large Sedimentary Basins, Perth.
- 1990 "Groundwater Interaction with Lakes in the Kerang Lakes Area, Victoria" Presented to Murray Basin '90 Conference, Mildura.
- 1990 "Management Implications of the Nyah to the South Australian Border Hydrogeological Project" Co-author with R.S. Evans. Presented to Murray Basin '90 Conference, Mildura.
- 1991 "Groundwater Management in a high watertable area, near Kerang, Victoria, Australia." Paper presented to the International Hydrology and Water Resources Symposium, Perth, October 1991.
- 1994 "Influence of Septic Tanks on Groundwater - Results of two case studies in Victoria" Paper presented at the "Water Down Under" international symposium held in Adelaide in November 1994.