

ABBREVIATED CURRICULUM VITAE

MARK W.G. KING, PhD, PGeo, CGWP

- President, Groundwater Insight Inc.
- Hydrogeologist specializing in contaminant modelling, fate, transport, risk and remediation.

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EDUCATION

- PhD, Hydrogeology, University of Waterloo, Waterloo, Ontario, 1997. Research on the fate and transport of PAHs in groundwater; published in Journal of Contaminant Hydrology, V. 39, Iss. 3-4, p. 249-307; download papers at <http://www.gwinsight.com/pubs.html>.
- MASc, Technical University of NS, Civ. Eng. Department, 1987. Research on acid drainage and transport of metals in groundwater; published in Cdn Water Resources Journal, V. 15, No. 4, p. 357-365; download paper at <http://www.gwinsight.com/pubs.html>.
- BSc, Dalhousie University, Geology Department. 1982.

PROFESSIONAL EXPERIENCE – Dr. King has worked in groundwater research and consulting for more than 20 years. He started his professional career as a Research Associate at the Centre for Water Resources Studies (TUNS) and, subsequently, was a Project Manager at the firm of Jacques Whitford. For the past 10 years he has worked with Groundwater Insight Inc., where he has provided expert technical services on more than 100 contaminant projects across North America. **Some recent projects conducted with Groundwater Insight Inc. include the following:**

- **Technical Lead** for Muggah Creek Watershed Groundwater Model - As part of II/III ESA Sydney Tar Ponds Project, Dr. King was responsible for groundwater modelling and developing the Conceptual Model for groundwater flow, contaminant distribution, and transport in the Muggah Creek Watershed. The cleanup budget for this project is \$400 million; see paper at <http://www.gwinsight.com/pubs.html>
- **Senior Hydrogeologist** - Development of conceptual and numerical models to support the design of a natural bioremediation system for DNAPL and PAHs in groundwater at an industrial site in Burnaby, BC; project received Award of Merit from CEBC (<http://www.cebc.org/awards/doc/cebc5AM1.pdf>)
- **Technical Director** – Environmental Management Consultant for environmental assessments in support of decommissioning work at the Sysco Steel Plant in Sydney, Nova Scotia. For additional details see <http://www.sysco.ns.ca/environmental.htm>.
- **Senior Hydrogeologist** - Development of conceptual and numerical models to predict post-remediation behaviour of PAHs, BTEX and DNAPL in groundwater, at a former Coke Ovens manufacturing plant in Kearny, New Jersey. Modelling for this site, one of the largest Brownfields projects in the state, was reviewed and approved by US Corps of Eng. and NJDEP. This work supported the design of corrective action involving approximately one mile of sheet pile and slurry wall and placement of more than 1 million cubic yards of cap material. Download paper at <http://www.gwinsight.com/pubs.html>.
- **Scientific Advisor** to the Advisory Committee, Technology Demonstration Project - The purpose of this project was to identify and bench-test appropriate remedial technologies for the Sydney Tar Ponds.
- **Senior Hydrogeologist** – Development/implementation of investigation to determine fate and extent of chlorinated solvents in bedrock at a coatings plant in Garwood, New Jersey; development of long term monitoring plan for plume natural attenuation.
- **Senior Hydrogeological Advisor** providing ongoing expert oversight services to Beazer East Inc., in the areas of groundwater contamination, DNAPL remediation and effective long term monitoring. Beazer has environmental interests in more than 80 chemical plants, coke ovens, coal tar plants and wood treating sites across the US. The objective of this work is to develop and maintain technical excellence in Beazer's nation-wide approach to management of contaminant issues on these sites.
- **Senior Hydrogeologist** - Development/implementation of program using chlorine and carbon isotopes to determine the source of dissolved chlorinated solvent plumes (PCE, TCE, DCE and VC) in the vicinity of an electronics manufacturing plant in Shenandoah, Virginia.

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- **Project Manager** for Peer Review of Groundwater Modelling related to Coke Oven Brook Realignment Project; conducted peer review of options designed to minimize contaminant discharge to the brook; also, **Modelling Manager** for follow-on work that supports the design and construction of the Realignment. For more information see <http://www.gov.ns.ca/stpa/default.asp?T=3&M=16>.
 - **Project Manager** - Conceptual design of a central facility for large-scale ex situ bioremediation of soil containing Pentachlorophenol.
 - **Project Manager** - Development of a novel system for cost-effective treatment of PCE in soil at a decommissioned dry-cleaning plant in Wolfville, Nova Scotia; process involved soil heating, condensation of off-gas, and dechlorination of condensate through contact with zero valent iron.
- Senior Hydrogeologist / Hydrogeological Advisor** for:
- ▶ Isotope interpretation for forensic identification of dissolved chlorinated solvent plumes (PCE, TCE, DCE and VC) in the vicinity of a chemical manufacturing plant in Charlotte, North Carolina
 - ▶ Evaluation of contaminants (chlorobenzene, nitrobenzene, chloroaniline) in groundwater at the Drake Superfund Site, a chemical plant in Lockhaven, Pennsylvania
 - ▶ Forensic evaluation of PAH sources and migration at a creosoting site - North Vancouver, BC
 - ▶ Evaluation and modelling prediction of the drawdown effects from a proposed open pit coal mine on a surrounding water supply aquifer – Pictou County, Nova Scotia
 - ▶ Numerical modelling of plume behaviour at a wood treating site; development of mass balance, to demonstrate that dissolved plume was not caused by vadose zone soils – Little Rock, Arkansas
 - ▶ Modelling and assessment of groundwater contaminants at the South Cavalcade Superfund Site, to support the development of an effective long term groundwater monitoring plan - Houston Texas
 - ▶ Assessment of steam stripping for remediation of a DNAPL site; evaluation of the importance of Hydrous Pyrolysis Oxidation in the steam stripping process - Florence, South Carolina
 - ▶ Litigation support related to plume migration and exposure in a residential setting – Arkansas
 - ▶ Litigation support related to groundwater plume/surface water interaction – Grenada, Mississippi
 - ▶ Design of effective Long Term Monitoring Program for PAHs in groundwater – Superior, Wisconsin
- **Specialist in Evaluation of Risk-Based Corrective Action (RBCA)** for numerous projects including:
 - ▶ Beta-tester for the RBCA program, on behalf of Nova Scotia DEL (PIRI Committee)
 - ▶ Assessment of Hydro One sites in Dryden, Ontario and Pinelands, Ontario
 - ▶ Assessment of many Nova Scotia sites, including: a shopping centre in Dartmouth; the decommissioned Heavy Water Plant in Point Tupper; several service stations; several multi-residential properties; two schools; two dry-cleaning sites; a sand-blasting operation
- **Project Manager** for selected projects previous to Groundwater Insight Inc, including:
 - ▶ Risk Assessment of a previous Manufactured Gas Plant site (PAHs, coal tar DNAPL) in Halifax, NS
 - ▶ Design, construction, and operation of groundwater P+T systems at six sites in Eastern Canada
 - ▶ Design and installation of novel free product recovery systems at two refineries (double diaphragm pumps + jet eductor system powered by the refinery steam plant) in Nova Scotia
 - ▶ Design and operation of large-scale landfarming program at decommissioned Texaco Marine Terminal, Charlottetown, Prince Edward Island; remediation of 8000 m³ soil
 - ▶ Design, construction and operation of a biopile soil remediation system at the Yarmouth County municipal landfill for Imperial Oil
 - ▶ Design, construction, operation of novel in situ bioremediation systems at two petroleum facilities
 - ▶ Site Assessment of Scotia Synfuels Refinery, Point Tupper; Imperial Oil Refinery, Dartmouth, Nova Scotia; Ultramar Refinery, Dartmouth, Nova Scotia
 - ▶ Site Assessments at more than 40 service stations, bulk plants and fuel distribution terminals

JOURNAL and CONFERENCE PAPERS - more than 30 technical references in the subject areas of contaminant hydrogeology and site remediation (see www.gwinsight.com for more information)