

Robert A. Hayes, C P G

Forensic Geologist

Certifications

Certified Professional Geologist
 Certified Underground Storage Tank Professional
 RBCA Certified
 OSHA 40-Hour Hazardous Waste Hazardous Waste Site Supervisor

Education

B. S., Geology, Wayne State University, 1970
 B. A., Physics, Wayne State University, 1972

Affiliations

American Institute of Professional Geologists; Past President, Michigan Section
 National Ground Water Association
 Association of Ground Water Scientists and Engineers
 MUSTFA Policy Board Member
 Michigan Society of Planning Officials

Professional Leadership Experience

President & Principal Geologist, GeoForensics, Inc., a forensic geology and environmental consulting firm

Environmental Department Manager, STS Consultants Ltd., an environmental and engineering consulting firm

Technical Advisor, COBIOREM, a consortium to test/research bioremediation in Michigan, MDEQ

Chairman, Quality Review Board, Environmental Response Division, MDEQ

Author, "Hydrogeologic Study Guidance Document", MDEQ

Chairman, "Verification of Soil Remediation" work group, MDEQ

Chairman, Degradation/Non-degradation Task Force for Groundwater, MDEQ

Board Member, Michigan Underground Storage Tank Financial Assurance Policy Board

Experience

GEOFORENSICS, INC.

- Principal Forensic Geologist and President (1998 to Present)

Use geosciences to solve problems related to rocks, soil, groundwater, surface water and/or wetlands for clients, such as insurance companies, government agencies, industrial manufacturers, mining companies, and attorneys. For example, identify geologic evidence to determine the cause of a tunnel explosion for a Fire Marshall, scientifically allocate costs among several parties responsible for groundwater contamination, fix the time of a chemical release relative to insurance coverage, analyze the cause of a vehicle accident for a county road commission, identify the cause of an excavation accident, assist regulatory agencies with evaluation and enforcement of aggregate extraction operations,

locate buried weapons and bodies for police agencies, or determine a suspect's presence or absence at a crime scene.

Specialize in litigation support services by combining geo-scientific data and analyses with knowledge of the law and regulatory agencies. Support is provided through actions such as interfacing with regulatory agencies, developing alternative settlement strategies, collecting evidence, providing independent evaluations of problems, giving expert witness testimony, providing low-cost alternative solutions, and/or other appropriate and creative actions.

Experience (Cont'd)

STS CONSULTANTS, LTD. (1992-1998)

- Manager, Environmental Services
- Manager, Litigation Support Services

Used regulatory knowledge, along with expertise and experience in hydrogeology to create innovative solutions for environmental problems. Managed a staff of 20 employees, which included geologists, engineers, technicians, drillers, and other support staff.

Directed and/or managed projects involving landfills, UST releases, chlorinated solvent contamination, baseline environmental assessments, phase I and II environmental evaluations, and groundwater, surface water, landfill and wetland permit acquisitions and/or waivers.

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
(MDEQ, formerly MDNR)

Environmental Response Division

- Forensic Hydrogeologist, Compliance & Enforcement Section (1988-1992)

Chairman of the Division's Quality Review Board; Department's technical coordinator for innovative remediation technology testing/research; evaluated soil and groundwater investigations and cleanups for compliance with environmental laws, technical quality, and consistency; provided technical training and direction to staff; developed guidance documents for investigation and evaluation of contaminated sites.

Represented the Department and the State in settlement discussions and legal enforcement proceedings, as hydrogeologic expert; directed and supervised high-profile hydrogeological investigations and cleanups; advisor to Division management and the Michigan Department of Attorney General on hydrogeological investigation and remediation matters.

- Senior Hydrogeologist, Remedial Action Section (1983-1988)

Senior/Supervising Hydrogeologist for the SUPERFUND Program (CERCLA): Provided technical direction, evaluation, oversight and approval of remedial investigations, feasibility studies, designs and actions; evaluated and selected state contractors; coordinated activities

with EPA. Expert witness for the Michigan Department of Attorney General, Environmental staff: Technical negotiator for the State of Michigan; supplied technical direction for the State in settlement discussions with the regulated community.



Experience (Cont'd)

Groundwater Quality Division

- Senior Geologist, Permits Section (1982-1983)

Provided technical evaluations for proposed groundwater discharges and treatment systems; supervised technical staff in evaluating similar projects; provided recommendations to the Water Resources Commission to issue or deny permits. Overhauled existing permit process and

developed special conditions for permit approval and operation of wastewater treatment and groundwater discharge systems. Developed the state's first groundwater discharge permit with limits and treatment requirements for viruses and bacteria and for hospital wastewater.

Water Quality Division

- Hydrogeologist, Groundwater Compliance and Special Studies Section (1978-1982)

Evaluated groundwater contamination and remediation studies for compliance with State and Federal regulations: Duties included planning and conducting hydrogeologic investigations; co-directed and co-authored

Michigan's Surface Impoundment Assessment Program, which inventoried and assessed the potential impacts associated with surface water impoundments containing wastewater.

MICHIGAN DEPARTMENT OF TRANSPORTATION (MDOT)

- Geologist and Environmental Specialist, Environmental Liaison Section (1974-1978)

Prepared environmental impact statements for transportation projects: Directed teams of engineers and scientists developing special mitigation procedures for expected adverse environmental impacts, such as roadway/rock

stability over abandon mine shafts; analyzed and ensured compliance with new and amended legislation relative to MDOT, geology and hydrogeology; developed salt storage manual for state-wide use and guidance.

- Assistant Geologist, Geotechnical Services Section (1972-1974)

Provided technical support for subsurface geologic investigations using seismic, resistivity and drilling methods: Supervised environmental drilling crews; collected and interpreted soil and water data from surface water, groundwater and geologic

investigations; participated in research and development of environmental impact statements; researched reports on various topics such as culvert corrosion, bedrock structure in the Keweenaw Peninsula and chloride contamination of groundwater.



Representative Projects

Directed and supervised more than 600 projects. Below are representative examples:

- Identified the cause of an explosion during construction of a tunnel in East Lansing, Michigan
- Showed that plaintiff's experts' testimony was without merit regarding construction of a gravel road in Oakland County, Michigan
- Identified major over-charges and excessive work by a consulting firm at UST sites in Wyoming and Mt. Pleasant, Michigan
- Evaluated a resin manufacturing facility for property transfer, and formulated a land use based cleanup in Detroit, Michigan
- Acquired wetland and surface water permits for peat mining in Three Rivers, Michigan
- Demonstrated that the opinion of a consultant for an industrial client was incorrect and that the groundwater contamination migrated onto the client's property from another contaminated site in Lansing, Michigan
- Demonstrated hydraulic isolation and appropriateness of reduced monitoring at a fly-ash landfill in Whiting, Michigan
- Identified potential environmental impacts associated with a proposed airport in Iron River, Michigan
- Used contaminant age-dating to determine which insurance company provided coverage for a gasoline release at a station in Rushville, Indiana
- Served as expert witness regarding a PCE release at a former dry-cleaning operation in Oscoda, Michigan
- Identified liable parties by determining the timing of a PCE release at a dry cleaner in Muncie, Indiana
- Identified additional responsible parties by analyzing data from a diesel-fuel pipeline accident in St. Petersburg, Florida
- Developed cost-allocation strategies for PRPs to remediate commingled plumes at a barrel reclamation facility in Lansing, Michigan
- Showed that a railway company did not take appropriate action to prevent a large rock from falling, impacting their commuter train, and causing injury, near New Haven, CT
- Determined the cause of a trench collapse which resulted in personal injury, in Osceola County, Michigan
- Provided expert witness testimony in a criminal case regarding illegal transportation and disposal of hazardous waste from Detroit, Michigan to Suffolk County, New York
- Determined the nature and cause of deterioration in expensive, decorative rock purchased in France and transported to Connecticut, USA; also, identified the source location of the rock in France.
- Demonstrated acceptability of non-compliance with health department regulations for wastewater disposal in an Amish Community in Gladwin County, Michigan
- Provided geological impact analysis associated with expansion of sand and gravel extraction in Washtenaw County, Michigan

Managing Hydrogeologist for the following SUPERFUND sites:

- Berlin & Farro, Genesee County, Michigan
- Verona Well Field, Battle Creek, Michigan
- Rose Township Dump, Oakland County, Michigan
- Cemetery Dump, Oakland County, Michigan
- Northernaire Plating, Cadillac, Michigan
- Chem Central, Grand Rapids, Michigan
- Residential Wells, Skandia, Michigan
- Gelman Sciences, Inc., Washtenaw County, Michigan
- McGraw Edison, Albion, Michigan
- Adams Plating, Lansing, Michigan
- Avenue "E" Contamination, Traverse City, Michigan
- Kysor Industrial Corp., Cadillac, Michigan
- Barrels Inc., Lansing, Michigan

Litigation Support

Provided court room testimony as expert witness in the following cases:

- Kelley v. Dowagiac Manufacturing
- Kelley v. Sunstrand Heat Transfer
- Kelley v. Maaco, et al.
- Kelley v. Chem Central Grand Rapids
- Kelley v. McGraw Edison
- Kelley v. Gelman Sciences, Inc.
- Granholm v. Clark Refining and Marketing
- M. L. Chartier, Inc. v. S&M Lumber Co., Inc.
- Palmerton v. Wakeland Oil Company
- Scio Residents for Safe Water v. Pall/Gelman
- United States of America v. Johan March
- Cox v. David Kircher

In addition to the above cases, provided deposition testimony in the following litigation:

- McGraw Edison v. Dow Chemical, et al.
- Kelley v. Jawad, et al.
- Kelley v. Rasmussen, et al.
- Zacharias v. Testing Engineers & Consultants
- Mattmiller v. Millburn Peat Company, Inc.
- Kelley v. National Services Investment, Inc.
- Kelley v. Pittsfield Products, Inc., Aco
- Wakeland Oil Co. v. ERM, Inc., Federated Mutual Insurance Co., Bob Smith Ford, et al.
- Kelley v. Myrtle Pascke, Amoco, et al.
- Rex Loop v. Franke's Septic Services
- Griffore et al. v. Road Commissioners for Oakland County
- R. Kovacs v. Bob's Modern Homes, et al.
- Sorrentino v. Clothing Clinic Cleaners
- Granholm v. Brazeway Inc.
- Gladwin County HD v. Amos Weaver, et al.
- Schaffer v. Wauseon, et al.
- Don Lee, Inc. v. Jones & Frank Corp., et al.
- Brookside Acquisitions, Inc. v. York Twp.
- Sadler's Marathon v. Auto-Owners, Ins.

Assisted counsel with discovery, settlement, and/or trial preparation in the following cases:

- Meijer, Inc. v. Total Containment, et al.
- Oswalt, Inc. v. Wakeland Oil Company and Shell Oil Company
- Wakeland Oil Company / A-1 Transmission v. Shell Oil Company
- Summerfield v. General Motors Corporation
- Granholm v. Richfield Iron Works, Inc.
- Yee v. Cummings et al.
- Van Essen v. Georgetown Township
- Gladwin Co. v. Amos Weaver, et al.
- Thompson-McCully v. Lodi Twp.
- Hainsworth v. Amtrack
- Proto-CAM v. 940 Monroe, et al.
- Edwards v. Ryan & Bradshaw, Inc. et al.
- Freedom Twp. v. Barrertt Paving & Materials

Presentations

Forensic Geology: American Institute of Professional Geologists, National Meeting

Hydrogeologic Investigation Guidance and Groundwater Not in an Aquifer: UST Consultants Training at MDEQ

Groundwater Contamination: Michigan Environmental Health Association

Engineering and Related Aspects of Hazardous Waste Disposal in Michigan: American Society of Civil Engineers

Hazardous Materials and Spill Response: County Road Association of Michigan

Perspectives on Environmental Issues in Economic Development: Michigan Economic Development Course, Western Michigan Univ.

Soil and Groundwater Investigations: Michigan Environmental Conservation Officers Training Academy

Geology and Groundwater: MDEQ/ERD Staff Training Course

Publications

Hayes, R.A. 2002. Earth Materials as Evidence. *Michigan Bar Journal* 81, no. 5

Hayes, R.A. 2000. The Minimum You Need to Know About BEAs. *Michigan Lawyers Weekly* 15, no. 6

Hayes, R.A. and Noyce, R. 1990. *Hydrogeologic Study Guidance Document*. Michigan Department of Natural Resources (MDNR).

Hayes, R.A. and Kincare, K. 1990. *Verification of Soil Remediation (Draft)*. MDNR.

Hayes, R.A. 1990. *Guidelines for Conducting a Phase I Environmental Assessment*. MDNR.

Hayes, R.A. and Laurer, M. 1983. *The Groundwater Discharge Permit Process*. MDNR.

Iverson, W. I., Hayes, R.A., Peelan, S., et al. 1982. *Hydrogeologic Study Handbook*. MDNR.

Hayes, R.A., et al. 1981. *Task Force Recommendations for Staff Guidance in Considering Degradation/Non-degradation of Usable Aquifers*. MDNR.

Hayes, R.A. and Lovato, J.L. 1980. *Michigan Surface Impoundment Assessment - An inventory of liquid waste impoundments and the assessment of their groundwater contamination potential*. MDNR.

Laverty, R. and Hayes, R.A. 1978, *Environmental Impact Statement for Reconstruction of Highway M-59 from US-23 to Highland Recreation Area, Oakland County*. Michigan Department of Transportation (MDOT).

Hayes, R.A. and Tansill, W. 1978. *Environmental Impact Statement for M-20 Bridge Replacement at Big Rapids, Mecosta County, Michigan*. MDOT.

Frobom, A. and Hayes, R.A. 1977. *Environmental Impact Statement for M-20 Bridge Replacement at Big Rapids, Mecosta County, Michigan*. MDOT.

Hayes, R.A. and Lilly, R. 1976. *Environmental Assessment for Reconstruction of Highway M-26 from Houghton to Vicinity of Atlantic Mine, Houghton County, Michigan*. MDOT.

