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## **BRUCE A. FOWLER**

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### EDUCATION

University of Vermont - M.S. in Environmental Engineering, 1984

Boston University - B.S. in Geology, 1977

### PROFESSIONAL REGISTRATION

Certified Geologist - Maine #329  
North Carolina #741

### AFFILIATIONS

Association of Engineering Geologists

National Water Well Association

### EMPLOYMENT HISTORY

Currently from 1988 - Sevee & Maher Engineers, Inc., Senior Hydrogeologist

1984 to 1988 - E.C. Jordan Co., Portland, Maine, Senior Hydrogeologist

1979 to 1982 - Exploration Logging, Inc., Houston, Texas, Geologist/Subsurface Pressure  
Detection Engineer

### EXPERIENCE

Mr. Fowler specializes in hydrogeologic investigations related to: (1) groundwater characterization related to landfills and hazardous waste sites; and (2) water resource development. He has broad experience in the application of surface and groundwater principles and in computer analysis of the fate and transport analysis of contaminants from landfills. His geologic engineering experience includes subsurface pressure detection analysis and numerical reservoir analysis in exploration drilling for gas and oil. Assignments in his various areas of expertise have included:

- Mr. Fowler was technical director for the location and design of potable, as well as analysis and rehabilitation of public water supplies in Maine, New Jersey, Ohio, and Connecticut. Over 70 large and small diameter public supply wells have been sited, designed, tested and permitted in both fractured bedrock and sand and gravel formations in all but 3 counties across New Jersey; 3 counties in Ohio, and 5 counties in Maine. Well yields have varied from 75 gpm in fractured bedrock to over 3,000 gpm in sand and gravel and karst limestone areas. Permitted water supply wells in all four states as well as in Massachusetts.

For the Gray, Maine Water District, Mr. Fowler, as technical director, supervised the installation of an additional pumping well and identified several additional sites which have been developed and prioritized. This project has involved regional hydrogeologic review and records search, specific site identification, test drilling and pumping test analysis, water quality analysis and assessment,

cost estimates for source of supply development, maps presenting prioritized sites relative to water yield and water quality, hydrogeologic reports for water allocation permits, and determination of wellhead protection areas and management. This project involved development of contractor specifications for the pumping well and pumping tests, performing and overseeing the pumping tests, and providing the analysis. SME performed detailed pumping tests, analyses, and numerical modeling to optimize the safe-yield of the supply wells on-site.

- Groundwater Extraction Design and Analysis - Project manager and technical director of design and installation of groundwater extraction and treatment system to capture TCE/DCE in highly contaminated aquifer in karst geologic setting. Responsibilities included installation of 14 bedrock/regolith extraction wells in three contaminated areas, step-drawdown and constant discharge pumping tests of these wells to evaluate aquifer characteristics and plume capture zones. Chemical data collected during the step-drawdown pumping tests was also evaluated to establish design criteria for long-term groundwater treatment system. Field requirements involved design and construction of interim air stripper/activated carbon treatment system and the management of over one million gallons of chemical-containing groundwater.
- Remedial Investigation/Feasibility Study - The project involved extensive site investigations and detailed surface and groundwater assessment to determine possible paths of contaminant transfer and plume migration characteristics at this NPL site. As technical director, Mr. Fowler's responsibilities included 2-D and 3-D fate and transport modeling of two distinct groundwater contaminant plumes; one of vinyl chloride, and the other of chlorinated solvents. Additional project responsibilities included design of remedial action technologies, including groundwater extraction, enhanced soil aeration, and soil flushing systems.
- Assessment of Gasoline Migration - For a confidential industrial client, Mr. Fowler directed an investigation of gasoline movement in soils and groundwater. The heavily industrialized site setting (i.e. extensive underground utility lines) and heterogeneous glacial deposits resulted in complex subsurface migration of free product and dissolved gasoline constituents. The project included a groundwater impact evaluation, as well as design of extraction systems for both the free and dissolved product plumes.
- Analysis and Design of Dewatering System - Mr. Fowler headed the Superfund site investigation and performed the pump test analysis of a dewatering system to drawdown water levels in a slurry wall-contained hazardous waste site in Michigan. Numerical modeling of point well sources with image well theory was employed to predict head depression beneath a saturated clay-capped zone. Nine well-points were used to control pore pressures in the contaminated soils so that construction of the impermeable cap could be completed.
- Oversight of a Remedial Investigation/Feasibility Study - Investigation addressed a TCE plume which had migrated over 2 miles impacting domestic and industrial water supplies. As part of this project, Mr. Fowler designed and analyzed three pump tests for the site, each utilizing 4 to 5 transducers in selected monitoring wells, in a vicinity of complex hydrogeologically confined and unconfined environments. William Walton's B-29 program (after Prickett and Lonquist), was selected to determine capture zones and the magnitude of drawdown in a two-layer leaky artesian aquifer.
- Mass-balance Analysis on a Contaminated Plume - Mr. Fowler applied extensive numerical and mass-balance modeling techniques to evaluate the individual contribution of a single point source pollutant to a larger contaminated plume body. The Konikow and Bredehoeft 2-D transport and dispersion model was utilized to evaluate the effect of various injection and pumping wells on plume migration.

- Fractured Bedrock Pump Test Analysis - Mr. Fowler monitored 14 test wells during a 5-day pump test of fractured bedrock at the McKin Superfund Site in Gray, Maine. The analysis of results culminated in design of a groundwater extraction and air stripper treatment system to capture and remove TCE in the groundwater at the site.

#### PUBLICATIONS/PRESENTATIONS

Fowler, Bruce A., "Phosphorus Diffusion in Lake Sediments," presented at the 14th Annual Great Lakes Research Conference Proceedings, 1984.

Fowler, Bruce A., "Nutrient Regeneration from Lake Sediments," Masters Thesis, University of Vermont, 1984.

Fowler, B.A., J.C. Drake, and D.R. Hemenway, "An Inexpensive Water Circulation System for Study of Chemical Exchange Using Intact Sediment Cores." Freshwater Biology (In Press).

Fowler, B.A., and J.T. Bennett. "Screening for Characterization of PCB-Containing Soils and Sediments." Proceedings of the National Conference on Hazardous Wastes and Hazardous Materials. Washington, D.C. March 1987.

Fowler, B.A. "A Case for Regional Numerical Analysis in Complex Water Supply Investigations." Proceedings of the NWWA Focus Conference on Eastern Regional Ground Water Fissures, Portland, Maine, October 1991.