

EXPERIENCE SUMMARY

Steve has 20 years of professional and academic experience in hydrogeology and water resources engineering, giving him a broad perspective on water issues. Steve earned an M.S. degree studying an Alaskan glacier, and then applied this knowledge of glacial geology for 5 years as a consulting hydrogeologist in Madison. After volunteering at the Grand Canyon teaching visitors about its natural history, Steve received a PhD in geological engineering studying southwestern Wisconsin trout streams. Steve worked on drinking water protection issues as a post-doctoral researcher at the Wisconsin Geological and Natural History Survey, and he developed public policy integrating land use, water resources and public health during a fellowship at the U.S. Environmental Protection Agency. Steve returned to Madison and joined Montgomery Associates in 2004, where he applies this experience to watershed planning, stormwater management, groundwater protection and development, flood analysis, and lake and wetland restoration.

EXPERTISE

Groundwater Analysis & Modeling
Water Supply & Watershed Planning
Stream Thermal Impact Assessment
Recharge Analysis & Design
Stream Analysis & Design

REGISTRATION

Professional Engineer
WI 39140

EDUCATION

BA-Geology & BA-Physics, 1988
Albion College
Albion, MI

PhD-Geological Engineering, 2000
MS-Geology, 1991
University of Wisconsin-Madison
Madison, WI

PROFESSIONAL HISTORY

Montgomery Associates: Resource Solutions,
LLC
Senior Hydrologist, 2004 – Present

Wisconsin Geological & Natural History
Survey
Hydrogeologist & GIS Specialist, 2000 – 2004

U.S. E.P.A. Office of Children's Health
Protection, American Association for the
Advancement of Science Fellow, 2001-2003

BT², Inc.: Hydrogeologist, 1991-1996

SELECTED PROJECT EXPERIENCE

St. Marys River Monitoring Project for TMDL Development, US EPA Region 5 (MARS Project Manager)

- Coordinated 16-18 weeks of bacteria sampling at 35 sites on the St. Marys River and its tributaries.
- Oversaw all project activities, including QAPP preparation, QA-QC procedures, public meetings and final reporting.

Dam Safety Analysis and Repair Plan, LaFayette, WI (MARS Project Manager)

- Inspected earthen embankment dam
- Modeled watershed runoff (XP-SWMM) & flood hydraulics with unsteady state hydraulic analysis including dam breach during the 100-year event (HEC-RAS)
- Prepared Emergency Action Plan and Operation, Inspection and Maintenance Plan
- Produced construction drawings & specifications; provided construction support for grading, outlet modifications, armoring & erosion control

Lake Belle View Restoration, Village of Belleville, WI, (MARS Project Engineer)

- Directed analysis of groundwater budget for the lake under current and proposed conditions through data analysis and construction of an analytic element groundwater model (GFLOW)
- Coordinated development of wetland and floodplain forest restoration & mitigation plan
- Conducted QC review of floodplain hydraulics analysis (HEC-RAS) and predicted lake hydrologic budget .



SELECTED PUBLICATIONS & PRESENTATIONS

Gaffield, Zolidis, Montgomery, Hovel, Goldstein & Swanson, 2009. *The role of science and uncertainty in resource-based planning in Fitchburg, Wisconsin*. Presentation at Amer Water Res Assoc Wis Section.

Gotkowitz, MB and SJ Gaffield, 2006. *Water-Table and Aquifer-Susceptibility Maps of Calumet County, Wisconsin*. Wisc. Geol. & Nat. History Survey Miscellaneous Map 56.

Montgomery, RJ, SJ Gaffield and NR Zolidis, 2005. *Infiltration of Stormwater Runoff for Groundwater Recharge, Dane County, Wisconsin*. Paper for 10th Internatl. Conf. on Urban Drainage, Copenhagen, Denmark.

Gaffield, SJ, KW Potter and L Wang, 2005. *Predicting the Summer Temperature of Small Streams in Southwestern Wisconsin*. Jour. Amer. Water Res. Assoc. 41(1): 25-36.

Coauthor of Ch. 7: *Water Quantity and Quality*, in H Frumkin, L Frank and R Jackson, 2004, *Urban Sprawl and Public Health*. Island Press.

Gaffield, SJ, RL Goo, LA Richards and RJ Jackson, 2003. *Public Health Effects of Inadequately Managed Stormwater Runoff*. Amer. Jour. of Public Health 93(9): 1527-1533.

Potter, KW and SJ Gaffield, 2001. *Watershed Assessment with Synoptic Base-Flow Surveys*. Amer. Geophys. Union, Water Sci. & Application 4: 19-25.

PROFESSIONAL ACTIVITIES

President, American Water Resources Association, Wisconsin Section

Wisconsin Cooperative Geological Mapping Committee, 2009 – present

Friends of Starkweather Creek board, 2004-present

Clark Creek Flooding Study, Sauk Co., Wisconsin (MARS Project Manager)

- Conducted hydrologic and hydraulic modeling (HEC-HMS and HEC-RAS) of June 2008 floods
- Evaluated mitigation alternatives including flood storage reservoirs, channel armoring, channel diversions, hydraulic structure upgrades, highway relocation, and home floodproofing/purchase.
- Performed cost-benefit analysis, defined permit processes, and presented at public informational meetings

Groundwater Recharge System Design, Madison Gas & Electric (MARS Project Manager)

- Designed 80 MGY stormwater infiltration system at the Odana Hills Golf Course
- Led hydrogeologic field & model investigation, including surface water hydraulics (XP-SWMM) & groundwater flow with 3-dimensional flow model (MODFLOW)
- Coordinated extensive public input & regulatory review

McGaw Neighborhood Plan, Fitchburg, WI (MARS Project Manager)

- Integrated aquifer sustainability & aquatic ecosystem impacts into land use & water supply planning
- Monitored stream flow & quality, and coordinated impact assessment with stormwater & groundwater models
- Presented at and led numerous public meetings

Replacement Siting Study for Unit Well 3, Madison Water Utility, (MARS Project Manager)

- Currently leading multidisciplinary team in hydrogeologic, land use, and infrastructure analysis of potential well sites on Madison's east isthmus
- Coordinated extensive public involvement including public meetings & citizen advisory group

Groundwater Recharge System Design, Madison Gas & Electric (MARS Project Manager)

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