

AIPG 2015

New England Aquifers: Elusive and Complex

December 9, 2015

Holiday Inn & Suites Marlborough
265 Lakeside Avenue, Marlborough, MA 01752

December 16, 2015

Hilton Garden Inn Glastonbury
85 Glastonbury Blvd., Glastonbury, CT 06033

This half-day workshop was developed to provide water utility personnel, engineers, hydrogeologists, regulatory officials, and other interested persons in understanding about the sand and gravel and bedrock aquifers their wells are located in and how and why well performance declines over time along with options that are available to rehabilitate your well. The workshop begins with an introduction of the geology and aquifers of New England. From plate tectonics to glacial geology along the effects of weathering that have created the majority of high-yield aquifers located throughout New England. A quick trip through well types, water well terminology, groundwater flow into well screens, and a discussion of specific capacity as it applies to sand and gravel and bedrock aquifers. Specific capacity is easy to calculate and use as a measure of the performance of your well, but something that is often overlooked. Moving forward, there is a segment on declining well performance including a discussion of the chemical, physical, and microbiological factors that are the cause for drop in performance in wells. Improving the performance of your well will be discussed by examining physical and chemical methods to rehabilitate your well and improve specific capacity. Understanding the permitting considerations along with the costs of well rehabilitation services will be discussed. The final segment of the workshop will be case studies on well rehabilitation. This will tie together all of the other segments of the workshop.

Program

- 8:00 am **Registration** – Coffee and Danish
- 8:30 am **Welcome and Introduction**
- 8:45 am **Geology and Related Aquifers of New England – Ted Morine**
- Geology of New England
- Glacial Features
- 9:30 am **Why Redevelop Your Well and Why Specific Capacity? – Ray Talkington**
- Water Well Terminology
- Specific Capacity
- Why Groundwater Flow into Well Screen is Important
- Entrance Velocity
- 10:00 am **Declining Well Performance or Why Wells Plug – Frank Getchell**
- Chemical Factors
- Physical Factors
- Microbiological Factors
- 10:30 am **Break**
- 10:45 am **Well Rehabilitation and Maintenance Techniques – Ted Morine**
- Physical Methods
- Chemical Methods
- New Techniques
- 11:30 am **Permitting Considerations and Costs – Frank Getchell**
- 12:00 pm **Case Study – All**
- 12:30 pm **Questions and Answers and Wrap-Up**
- 12:45 pm **Adjourn**

****Earn 4 Contact Hours
(.4 CEU's) from AIPG!
*Earn 2 LSP Technical
Credits!
*Earn 4 NH Water
Works Operator TCHs***

***Two Locations to
Choose From!***



AIPG 2015

New England Aquifers: Elusive and Complex

Presenters



J. Theodore Morine, P.G., CPG — Ted Morine is the Vice President and Senior Hydrogeologist for the Denis L. Maher Company. Ted has been providing groundwater exploration and development for sand and gravel wells and bedrock wells since 1963. During this time he has brought on line more than 200 high yielding groundwater sources for private and public clients throughout the world. In addition to his groundwater exploration skills, Ted has been involved with hundreds of well redevelopments in both sand and gravel and bedrock systems.

Ted is a frequent lecturer on Well Redevelopment and Maintenance for the New England Water Works Association, American Water Works Association, New Hampshire Water works, and numerous other organizations.



Raymond Talkington, Ph.D., P.G., CPG — Dr. Raymond Talkington is the Principal Hydrogeologist and President of GEOSPHERE Environmental Management, Inc. He has over 30 years of experience providing direction to GEOSPHERE's hydrogeological and geological projects. Typical projects involve groundwater supply exploration and development in sand and gravel and fractured bedrock systems. This includes the interpretation of glacial features on U.S. Topographic Maps along with the air photo interpretation and performing fracture trace analysis (FTA) to locate potential drilling targets for high yielding bedrock groundwater sources.

For over 20 years Ray has been a regular instructor for courses on well redevelopment and maintenance, bedrock wells, and helping people understand the ABCs of groundwater, wells, and aquifers. Dr. Talkington was the 2014 President of the American Institute of Professional Geologists (AIPG) and a past Editor of the professional journal "The Professional Geologist." He has 50 professional publications including books and chapters in geology laboratory manuals.



Frank Getchell, P.G., CPG — Frank Getchell is a Principal and Managing Hydrogeologist with Leggette, Brashears & Graham, Inc. His over 30 years of professional consulting experience includes management, design and implementation of subsurface investigations related to groundwater resource development and planning; aquifer hydraulics; groundwater recharge and storage and ASR; construction, foundation and quarry dewatering; land use impacts related to building development and extractable resource activities; and delineation and remediation of contaminated soil and water. Typical projects involve the evaluation of aquifer and well yields and hydraulic performance; the design, siting, and rehabilitation of screened and open-borehole wells; assessment of groundwater movement and the implications for contaminant fate and transport, and remediation of soil and ground water in unconsolidated deposits and fractured bedrock aquifers for private, municipal, utility, and industrial clients throughout the country. His experience dealing with regulators and permitting includes: water supply diversion and allocation permits; wetland delineations and impact mitigation; stormwater and wastewater subsurface disposal systems and SPDES permitting. His experience also includes the development and utilization of 2-D and 3-D numerical and analytical models and GIS-based analysis to evaluate contaminant fate and transport, aquifer hydraulics, and groundwater flow and recharge.

Mr. Getchell's experience includes the application and interpretation of surface and downhole geophysical investigations to delineate and estimate hydraulic properties of aquifers. Frank regularly provides technical support and expert witness testimony before local planning boards and courts of law regarding the impacts on land use, the subsurface environment, water-supply wells and water resources resulting from proposed and existing groundwater supply development, land use, contamination sources, resource extraction, and waste disposal practices.

Mr. Getchell has published numerous papers and provided related presentations at local and national water-resource and environmental organization meetings, conferences, and workshops, in connection with water supply development, and land use impacts on soil, bedrock, and groundwater conditions and contamination. He also is a regular technical instructor for the NJWA, NYRWA, and AWWA/NEWWA in connection with water-supply operator certification continuing education programs.

American Institute of Professional Geologists - 12000 Washington Street, Suite 285, Thornton, CO 80241
Phone: (303) 412-6205, Fax (303) 253-9220, Email: cld@aipg.org