



Wright Water Engineers, Inc.

**MARSHALL R. HAWORTH**  
HYDROGEOLOGIST

**CURRENT**

Consultant on Colorado water rights, rules, regulations, and permit processes. Experienced in water rights including the preparation and review of engineering reports and decrees to support applications and objections, augmentation plans, substitute water supply plans, and water rights accounting. Proficient in well design, geologic logging, preparing well drilling proposals and driller bid documentation, well completion oversight, well field design, well integrity evaluation, well rehabilitation, aquifer testing and analyses, and dewatering and injection systems. Highly skilled in surface water and groundwater interactions, hydrogeological investigations and site characterizations, water quality assessments, nontributary determination investigations, depletion and recharge analyses, groundwater quality and level monitoring, geophysical log interpretation, and aquifer recharge and recovery.

**EDUCATION**

B.S., Watershed Science, Colorado State University  
Fort Collins, CO

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**REPRESENTATIVE PROJECTS**

***Expert Disclosure***

**Confidential Waters of the U.S. Investigation.** Supported the U.S. Department of Justice in an investigation of alleged Waters of the United States violations of the Clean Water Act in the Eastern United States.

**City of Englewood.** Prepared an expert disclosure in Case No. 15CW3144, Division 1 Water Court, for the City of Englewood. The petitioner in the case was Timbro Ranch Cattle Company. (Work performed while with a different consulting firm.)

**Denver Water.** Prepared an expert disclosure in Case No. 15CW3144, Division 1 Water Court, for Denver Water. The petitioner in the case was Timbro Ranch Cattle Company. (Work performed while with a different consulting firm.)

***Hydrological Investigation***

**River Run Ranch, Granby, Colorado.** Provided well rehabilitation and water quality assessments to support the development of commercial recreational development. Recommended lowering the submersible pump and adding a shroud to remediate a water production issue. Developed a water quality sampling plan to identify necessary steps for the water supply to meet Town of Granby criteria.

**Confidential Residential Subdivision Investigation.** Performed site characterization to test the hydraulic connection of pipe utility bedding within a residential development. Implemented a storm drain leak testing program to test the leakage rate of a suspected storm drain pipeline. Provided expert testimony on the field-testing activities.

**Central Colorado Water Conservancy District.** Evaluated the presence of hydrogen sulfide at client's reservoirs, reviewed geologic presence of coal seams that could possibly be contributing to high detection of hydrogen sulfide, provided water quality sampling procedures, and supported District with Regulation 85 and 31 prehearing statements in response to Water Quality and Control Commission rulemaking process.

**Boxelder Basin Regional Stormwater Authority.** Conducted groundwater monitoring program and site evaluation to assess the potential water rights injury to nearby irrigation wells due to the proximity of a dewatering pipeline. Provided support on water rights evaluation and well permitting.

**Eastern Adams County Metropolitan District, Strasburg, Colorado.** Provided water rights engineering support and groundwater resource assessment associated with residential developments, wellfield management, and additional well recommendations for expanded use. Managing well drilling activities including well design and completion. Performing geophysical log analyses of the Denver Basin aquifers to evaluate potential well yields to meet water demands.

**Watkins Arapahoe Wells.** Managing well drilling activities including well design and completion. Performing geophysical log analyses of the Denver Basin aquifers to evaluate potential well yields to meet water demands.

**Hodgson Ditch Evaluation.** Performed due diligence evaluation of shares in the Hodgson Ditch to determine sufficiency of supply, verify decreed use, and delineate the transfer process.

**Alpine Recycling Center, Denver, Colorado.** Review water quality results relating to historical contamination from neighboring property, and the transport of contaminate to Alpine property, evaluation of the remediation and redevelopment process with the Colorado Department of Health and Environment.

### ***Well Permitting, Design & Construction***

**Western Transport Metropolitan District, Watkins, Colorado.** Performed project management of wellfield development including well drilling oversight, geophysical log interpretation of the Denver Basin aquifers, well design and completion, and aquifer test analyses. Provided guidance for well rehabilitation and supported an investigation of defective work. Performed groundwater modeling to evaluate potential well yields to meet water demands and aquifer groundwater modeling of the wellfield to estimate long-term production.

**Home Ranch, Clark, Colorado.** Performed permitting, well design, preparation of specification package, well completion oversight, aquifer testing, and engineering design to improve water supply.

### ***Water Rights***

**Town of Buena Vista, Buena Vista, Colorado.** Water rights evaluations, groundwater rights assessment for infrastructure improvements, aquifer testing and equipment improvements, evaluations for additional water supply.

**Hodgson Ditch Evaluation.** Performed due diligence evaluation of shares in the Hodgson Ditch to determine sufficiency of supply, verify decreed use, and delineate the transfer process.

**Tallgrass Energy.** Assessed groundwater rights and performed wellfield due diligence within the Lost Creek Designated Basin. Provided water rights accounting support to manage water reporting requirements.

**Clear Frontier Agriculture.** Performed water rights due diligence of a sod farm associated with surface water right, reservoir storage right, alluvial wells, and Denver Basin groundwater, water quality assessment in support of irrigation uses, analysis to understand potential nontributary groundwater yield from current wells, projection of additional wells, financial investment to develop wellfield, and profitability from selling water within 5 to 10 years.

**Camp Tahosa.** Performed due diligence evaluation associated with the Boy Scouts of America Camp. Evaluation included water rights estimation, water demand assessment, well yield and water quality testing and assessment, projection of physical water supply, geophysical survey to identify possible bedrock fractures, and estimated costs for site improvements.

## OTHER EXPERIENCE

**Staff Hydrogeologist,** April 2016 – May 2021. Martin & Wood Water Consultants Inc., Golden, CO. Prepared water right applications and well permits. Interpreted lithologic and geophysical logs for water well design and hydrogeologic evaluations. Provided technical support for the completion of municipal, industrial, and residential water supply wells. Reviewed water court decrees and expert reports including stream depletion and historical consumptive use analyses for the protection of water rights. Managed augmentation plans, substitute water supply plans, and water rights accounting. Prepared aquifer testing and analyses, hydrologic modeling and ArcGIS applications related to water resource investigations.

**Hydrogeologist,** August 2014 – April 2016. Terracon Consultants, Wheat Ridge, CO. Managed field operations for Phase II Environmental Site Assessments and dewatering projects. Performed geologic and groundwater quality investigations and site assessments. Conducted assessment of water quality and applicable standards. Assisted with remediation projects including Voluntary Cleanup Applications and Brownfields.

**Hydrogeologist,** April 2014 – August 2014. McGrane Water Engineering LLC, Boulder, CO. Compiled meteorological data, geospatial data, and diversion records for water balance studies. Evaluated pump test data to determine aquifer properties.

**Hydrogeologist,** September 2013 – June 2014. Division of Water Resources, Denver, CO. Collected field measurements for groundwater monitoring using data loggers and manual water level equipment. Developed stratigraphic cross-sections from geophysical log interpretations. Maintained and analyzed data for technical reports and presentations.

## PROFESSIONAL SOCIETIES

American Water Resources Association — Colorado Section

Colorado Ground Water Association

**PUBLICATIONS**

Topper, R., C. Meyer, M. Haworth, K. Donegan, H. Banks, A. Bandler, A. Flor, and M. Sares. 2017. The Upper Pierre Aquifer of the Cheyenne Basin, Northeastern Colorado, Geologic Cross Sections, Water Resources Investigation 2017-1a, Colorado Division of Water Resources.