Dale E. Book, P.E.
Principal Water Resources Engineer
Spronk Water Engineers, Inc.

Education: Master of Science Degree in Civil Engineering, with specialty in Water Resources Planning and Management, August 1980, Colorado State University.

Bachelor of Science degree in Civil Engineering, May 1976, University of Illinois.

Professional Registration: Professional Engineer in Colorado, Idaho, Kansas, New Mexico, Oregon and Montana.

Professional Memberships: American Society of Civil Engineers
American Water Resources Association

Professional Experience:

November 1984 to Present — Spronk Water Engineers, Inc.
1000 Logan Street
Denver, Colorado 80203

1. Water Rights Engineering
   * Water right transfers
   * Plans for Augmentation
   * Evaluation and appraisals
   * Interstate Compacts
   * Applications and permits
   * Expert testimony

2. Water Resources Engineering
   * Water Supply Planning, municipal, industrial and agricultural
   * Reservoir operation studies
   * Drainage and flood control

3. Hydrology
   * River basin yield evaluations
   * Computer modeling
   * Stream Depletion analyses
   * Crop Consumptive use

Summary of Experience

Mr. Book is president and principal engineer of the firm Spronk Water Engineers, started in 1984. The firm specializes in water rights engineering, water resources planning, surface and groundwater investigations and water resource systems operations. Projects have been completed in Colorado and other western states related to water rights transfers, water supply, river basin modeling, and stream adjudications. Projects have involved evaluation of irrigation systems and quantification of effects on streamflows. Mr. Book is experienced with various methods to determine crop consumptive use; mapping irrigated area on regional scale; documentation and analysis of historic use of water rights and quantification of historic use of water rights. Spronk Water Engineers provides consulting services to a variety of clients including state agencies, cities, municipal water districts, irrigation districts, ditch companies and private water providers. Mr. Book is responsible for project management and preparation of reports and presentations. Experience has included assistance to clients in negotiations for agreements or settlement of litigation in water rights matters.

Descriptions of representative projects:

Plans for Augmentation and Changes of Water Rights

Preparation of plans for augmentation for numerous entities in Colorado to allow development of new water supplies with alluvial wells, while preventing injury to vested water rights by providing substitute supplies. Development of augmentation plans has included identification and evaluation of substitute water supplies, quantification of water demands, evaluation of existing water rights to be protected and development of terms and conditions for administration of the augmentation plan. Involvement has included preparation of engineering reports and court exhibits, negotiations with objectors and presentation of expert witness testimony in water court. Specific augmentation plans have included the following:

Logan Well Users
North Table Mountain Water and Sanitation District
Forest Lakes Development
Arapahoe County Water and Wastewater Authority
Chatfield East Homeowners Association

Arkansas River Investigations - Kansas v. Colorado

Conducted investigations of hydrology, irrigation practices, stream depletions and reservoir operations to evaluate compliance of post-compact developments in Colorado with the Arkansas River Compact. Investigations were undertaken to develop evidence presented to the Special Master appointed by the U.S. Supreme Court for the trial in Kansas v. Colorado.

Assisted the State of Kansas in ongoing monitoring of compact compliance and implementation of groundwater Rules and Regulations in Colorado. Specific responsibilities included:

* Consumptive Use analysis for irrigated crops
* River basin modeling to represent hydrologic and allocation elements of the Arkansas River Basin in Colorado for the purpose of quantifying stream depletions at the Kansas-Colorado Stateline caused by post-compact development in Colorado
* Present expert witness testimony to Special Master
* Participate in meetings of the Arkansas River Compact Administration and the Engineering Committee of the Administration
* Quantification of historical well pumping by analysis of power records
* Mapping approximately 300,000 acres of irrigated area in Colorado
* Analysis and summarization of streamflow, diversion and reservoir records for the Arkansas River Basin
* Annual updates of compliance monitoring with model

Republican River Compact Investigations

Conducted investigations of hydrology, water use, and reservoir operations of the Republican River Basin to assess compliance with the provisions of the Republican River Compact between the States of Kansas, Nebraska and Colorado. Represented the State of Kansas in settlement negotiations to resolve the Supreme Court litigation in Kansas v. Nebraska and Colorado. Participated on committee to develop and implement a groundwater model of the Republican River Basin for the Republican River Compact Administration. Analysis of irrigation water use in the Republican River Basin in Kansas, Nebraska and Colorado for purpose of quantifying beneficial consumptive use and providing inputs for groundwater model.

Eagle County, Colorado

Water rights consultant to Eagle County. Advise County regarding proposed water development projects, transfers and augmentation plans. Assist with protection of County's water rights and management of water supplies.

Lower Rio Grande Hydrologic Investigations

Assist the New Mexico Interstate Stream Commission in evaluations of the water supply for the Lower Rio Grande (LRG) between Elephant Butte Reservoir and El Paso, in support of the general stream adjudication of the LRG. Participate in various technical committees to pursue settlement of various issues. Surface water modeling to quantify impacts of historic water use. Assist with identification and development of management strategies to implement conjunctive administration of ground and surface water.

Lawngrass Irrigation Return Flows

Investigated irrigation return flows for the City of Thornton, using data collected from lysimeters by the City. Analyzed data and developed evidence to substantiate Thornton's claims for return flow credits. Participated in negotiations with other parties and provided expert witness testimony to water court for Thornton's claims to return flow credits. Conducted lysimeter investigations of turf irrigation, consumptive use and return flows for Arapaho County Water and Wastewater Authority.

City of Pocatello, Idaho

Conducted water resource investigations for the City of Pocatello in connection with the City's claims in the Snake River Basin Adjudication. Ongoing efforts for the City include preparing evidence to substantiate claims, development of a mitigation plan to allow the City's continued use of wells, evaluation of other claims in the adjudication to assist the City in protecting their water rights.

Department of Justice, Klamath Basin Adjudication

Conducted investigations of claims in the Klamath Basin adjudication for Walton Reserved Water Rights in the state of Oregon. Documentation of historic irrigation development and chain of title information to assess basis of claims.

September 1983 to October 1984 — Senior Water Resources Engineer, Simons, Li & Associates, Denver, Colorado

Project Engineer for water rights and drainage projects. Development of plans for augmentation, evaluation of water rights and river basin studies. Rainfall runoff and water surface profile computer modeling.

June 1980 to September 1983 — Water Resources Engineer, Leonard Rice Consulting Water Engineers, Inc., Denver, Colorado

Water supply planning and water rights management, urban drainage analysis, flood plain delineation and related hydrologic and hydraulic analysis. Planning and design of sedimentation and drainage facilities for mining activities, spillway design, and operation studies for water supply reservoir.

September 1978 to May 1980	Graduate Research Assistant Colorado State University Water Resources Planning and Management Program Department of Civil Engineering
June 1976 to August 1978	Water Resources Engineer Harza Engineering Company Chicago, Illinois

Hydrologic and hydraulic analyses, structural layouts, economic evaluations, plan formulation and feasibility studies for water resources projects. Field surveying, hydrology and backwater computer modeling for plain delineation.

Publications:

A Dynamic Hydraulic Model for Simulation and Evaluation of Complex Drainage Systems, Book, D. E., Masters Thesis, Colorado State University, Fort Collins, Colorado, June 1980.

Dynamic vs. Kinematic Routing in Modeling Urban Storm Drainage, Book, D. E., Labadie, J. W. and Morrow, D., presented at Second International Conference on Urban Storm Drainage, Urbana, Illinois, June 1981.

Interstate Compacts and Transfers, Book, D. E., paper presented at ASCE Water Resources Planning and Management Division 14th Annual Conference, Kansas City, Missouri, March 1987.

Overview of Development and Use of Crop ET Estimates with Hydrological Models for Interstate Compacts, Book, Dale E. and Brengosz, Mary Kay, presented at ASCE World Environmental and Water Resources Congress, May 2009.

Arkansas River Compact and Interstate Litigation, Book, D. E., presented at Water Rights and Water Resources of the Arkansas River Basin in Colorado Program; Colorado Bar Association, CLE, March 26, 2010.