



## **Progressive Water Resources**

*Integrated Water Resource Consultants*

### **David J. Brown, P.G.** **Managing Partner**

#### **OVERVIEW**

David Brown has a broad professional background in geology, ground water hydrology, and permitting. Since 1983, he has managed the technical aspects of water resource development and sustainability projects throughout the southeastern United States, with particular emphasis in Florida. He has both public and private professional experience, enabling him to provide a straight forward and integrated approach to resource development and protection. He has successfully worked with, and provided technical input to, numerous public officials and agencies involved in water resource policy. In addition, his background includes ground water modeling, stratigraphic interpretation, geophysical investigations, aquifer testing, ground and surface water quality monitoring, and TMDL's. Other areas of expertise include alternative water resource development, and irrigation efficiency. Mr. Brown has a B.S. degree in geology from the University of Florida and is a registered professional geologist in the State of Florida.

**Water Resource Development and Protection** – Mr. Brown has managed the installation and performance testing of municipal drinking water, irrigation and remedial recovery well systems, including statistical analysis of well yield, water quality and efficiency. He has supervised detailed hydrogeologic investigations, including supervision of related drilling, sampling and geophysical investigations necessary for permit approval. He has designed and developed alternative water supply and recovery sources to offset and augment existing supplies. He has also designed and supervised the installation of complex monitor well networks under strict regulatory guidelines. As a Senior Water Use Permit evaluator he played a critical role in the overview and assessment of Hydrobiological Monitoring Plans for several large public water supply projects. He has participated in Intermediate Aquifer System studies, upper Myakka River watershed analyses and authored sections in agricultural BMP manuals.

**Water Quality** - Mr. Brown coauthored and provided technical expertise for the Shell Creek and Prairie Creek Watersheds Management Plan to provide reasonable assurance for Total Maximum Daily Loads. FDEP considers this effort a template for TMDL reasonable assurance plans throughout the state. In addition, he created the SWFWMD's Irrigation Well Back-Plugging Program to remediate poor water quality wells in the Southern Water Use Caution Area (SWUCA). His knowledge of borehole geophysics provided a clear plan of action and understanding of sustainable ground water quality improvements. These same efforts have led to a better understanding of aquifer flow and water quality relationships.

**Permitting** – Throughout Mr. Brown's professional career he has been involved in permit submittal and review of water resource projects. He has successfully submitted and received County, FDEP and Water Management District permits for industrial, agricultural, public supply and recreational/aesthetic projects. As a Senior Water Use Permit evaluator he has reviewed and permitted water use projects throughout west-central Florida, with particular emphasis on public supply. Some of the larger public supply permits under his review included the Peace River/ Manasota Regional Water Supply Authority, Manatee County's East County Wellfield, Sarasota County's Carlton Wellfield, the City of Venice, and various other municipalities in west-central Florida.

**Aquifer Assessments and Ground Water Modeling** – Mr. Brown has supervised, performed and analyzed multiple surficial, intermediate and upper Floridan aquifer system performance tests. He has also

developed a multiple aquifer potentiometric surface database for use in calibrating computer modeling of water levels, recharge rates, and developmental impacts for projects. He has conceptualized and designed complex computer ground water flow models for Water Use Permits in the SWUCA. He has also successfully testified on ground water models and their results.

## **RELEVANT EXPERIENCE**

### **Facilitating Agricultural Resource Management Systems (FARMS)**

While with SWFWMD, Mr. Brown managed the Facilitating Agricultural Resource Management Systems Program and staff, including the development of Operating Agreements with other state agencies, assisting in obtaining over \$3.5 million in state appropriations and matching funds, designing program contracts and authored programmatic technical guidelines. Maintained programmatic budgets in excess of \$6 million dollars and provided program performance audits for water management boards, elected officials and their representatives. FARMS is a BMP cost share reimbursement program for water quantity and quality projects in the SWUCA.

### **Total Maximum Daily Loads –Co-authored the Shell Creek and Prairie Creek Watersheds**

While with SWFWMD, Mr. Brown developed a Management Plan to provide reasonable assurance documentation to address Total Maximum Daily Loads in two Class I watersheds that supply drinking water to the City of Punta Gorda. Included in this effort was the organization of a diverse group of stakeholders, including federal, state, county officials, conservation and environmental groups, agricultural commodity representatives, local agriculturalists and property owners. Also developed and help fund the two primary management actions to address TMDLs, the FARMS and Irrigation Well Back-Plugging Programs. FDEP has accepted this plan as providing reasonable assurance.

### **Boran Ranch and Sod Water Use Permit Administrative Hearing**

As the Senior Professional Geologist – Hydrologist for SWFWMD recommending permit approval, Mr. Brown provided expert witness testimony in support of an increase in ground water quantities for a Water Use Permit located in southwest DeSoto County. This effort required a coordinated interaction with both State and private legal council. In addition, Mr. Brown developed all of the courtroom graphics and ground water flow models in support of the permit. The District prevailed and Mr. Brown's testimony provided evidence for successful decisions on subsequent administration hearings.

### **Alternative Water Supply Development**

Mr. Brown was essential to the development of alternative water supply sources from the Surficial Aquifer System in Charlotte and DeSoto Counties, Fl. The understanding of hydraulic properties of unconfined sediments provided for a viable source of irrigation water for agricultural projects that had previously used highly mineralized ground water. His irrigation supply system designs also included surface water routing to facilitate rainfall capture, tailwater recovery and reuse. His development of ground water flow models simulating the dry season use of shell pit excavations was instrumental to the understanding and permitting of these alternative supplies. In addition, he designed a program to test model simulated drawdowns and volumetric yield.

### **New Wales Chemical Complex**

Mr. Brown helped develop photogrammetric techniques for analytical bridging of historic aerial photographs to locate improperly abandoned Class V injection or recharge wells that had been previously excavated by mining activities decades earlier. These wells, located in and around the chemical complex, had to be located and investigated as potential sources of contamination to the upper Floridan Aquifer System. The successful discovery and proper abandonment of these wells not only prevented future contamination, but also proved to be extremely cost-effective due to the accuracy of the location data.

### **Irrigation Efficiency Projects**

Mr. Brown has been instrumental in the incorporation of technology to increase irrigation efficiency. The use of integrated real-time data acquisition and irrigation pump control systems has proven highly successful. These systems are considered win-win projects in that they reduce water use, reduce nutrient leaching, and reduce fuel consumption. The understanding of soil-water interactions has proved invaluable to the agricultural industry.