

## EDUCATION

Louisiana Board of Regents Fellow, Dept. of Mathematics, Tulane University, 1991-1993  
 M.S., Civil Engineering, University of Colorado, 1988  
 B.S., Civil Engineering, Louisiana State University, 1984

## EXPERIENCE

### **Leonard Rice Engineers, Inc., Denver, Colorado**

*Applications Development Specialist, Project Engineer, IT—2010-present*



**Rangen Fish Hatchery, Snake River, Idaho: Project Engineer:** Review and consultation on the Idaho Department of Water Resources ground water modeling activities that impact water rights administration affecting the Rangen Spring flow and water quality. Member of ESHMC committee, using and customizing the ESPAM 2.0 modeling systems.

**Colorado River Water Availability Study:** Applications Development. Design and Develop hardware and software systems for the CRWAS Web Viewing Tool (WVTool) that provides web based access for the public to the climate modeling results of Colorado's StateMod western slope basin models. Custom algorithms and PHP DMI's to StateMOD output files for rapid data search and access, web based data visualization tools using the Google Data Visualization javascript libraries, map based interfaces using javascript and Google Maps API v3/

**City and County of Broomfield, Applications Development:** Design and development of online water accounting and reporting systems used for augmentation plan reporting, internal operations. Drupal, custom Drupal modules, PHP, PHP to Excel XLSX reports, PostgreSQL.

**Leonard Rice Engineers, Inc.: IT and Applications Development:** Custom software and web development, as well as design, installation and maintenance several Linux servers (both hardware and software systems) used as database servers, web servers, software development servers, spatial data servers. Ubuntu, Linux/Apache/MySQL/PHP, Drupal, custom Drupal module development, PostGIS, MapServer, git, javascript/HTML.

**Central Colorado Water Conservancy District:** Applications Development. Design and development of a CCWCD member web site allowing users to view and input well and CCWCD system data. Drupal, PostgreSQL, PHP, javascript and Google Data Visualization libraries.

### **Brannon Developments, Broomfield, Colorado**

*Principal, Project Manager, Applications Development Specialist—2009-2010*

**Central Colorado Water Conservancy District:** Project Manager and Applications Development. Design and development of a CCWCD member website allowing users to view and input well and CCWCD system data. Drupal, PostgreSQL, PHP, javascript and Google Data Visualization libraries.

**Rangen Fish Hatchery, Snake River, Idaho:** Project Engineer. Review and consultation on the Idaho Department of Water Resources ground water modeling activities that impact water rights administration affecting the Rangen Spring flow and water quality. Member of ESHMC committee.

### **Leonard Rice Engineers, Inc., Denver, Colorado**

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*Sr. Project Manager, Project Manager, Technical Lead - 2006-2007*

**Rangen Fish Hatchery, Snake River, Idaho: Project Engineer:** Review and consultation on the Idaho Department of Water Resources ground water modeling activities that impact water rights administration affecting the Rangen Spring flow and water quality. Member of ESHMC committee.

**State of Colorado Parks Department - North Sterling Reservoir Augmentation Plan:** Project management and development of accounting data and processes for updating the augmentation plan reporting to Division 1.

**Colorado DSS StateCU Model Upgrade Project:** Technical lead and programmer. StateCU model upgrades (FORTRAN). StateCU GUI redesign and improvements (VB.NET, VB6). StateCU Wizard design and development (VB.NET, Hydrobase XML web services).

**Central Colorado Water Conservancy District GMS and WAS Augmentation Plans:** Project Engineer and technical lead. Design, develop, and implement a multi-user, multi-use server based relational database system (postgreSQL, SQL, PHP, etc.) to support augmentation plan accounting requirements (data collection, storage, and processing; Glover-based stream depletion calculations.)

**Golden Eagle Ranch Waterfowl Habitat Creation SWSP and Augmentation Plan:** Project Engineer. Create Excel-based modeling tool to evaluate stream depletion impacts of alternative waterfowl habitat creation scenarios and to support development of an augmentation plan.

**Colorado Rio Grande DSS:** Project Engineer. Review and verification of the Colorado RGDSS MAKERTN system that combines spatial and time series irrigation data (ESRI GIS) with ground water modeling results (MODFLOW) to create appropriate input files for the States' Surface Water Model (StateMod). Designed and developed this system during the RGDSS project while an engineer at Hydrosphere.

**Brannon Developments, Broomfield, Colorado**  
*Principal, Project Manager—2005-2006*

**Centennial Water and Sanitation District:** Project Manager. Design and development of a water rights and resources accounting and reporting system based on relational database technology for a large municipal water provider. Design and build the underlying relational structures to support storage and accounting of the varied water resources (ground water pumping and recharge, direct surface diversions, storage, stream flows, reservoir accounting, augmentation plans). Design and build Excel based GUI to the database tables and queries. (SQL, Access, SQL Server, VBA and ADO).

Consulting and advising services for the Colorado Water Conservation Board for review of preliminary South Platte River base-flow analyses using techniques and procedures developed when a member of the Peer Review panel of the State of Colorado's Rio Grande Decision Support System project.

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**Hydrosphere Resource Consultants, Boulder, Colorado**  
*Senior and Project Engineer—1993-2005*

Worked on several projects that involved numerical and analytical mathematical modeling of surface and ground water systems, performed many engineering analyses related to water rights and hydrology, provided expert testimony for litigation, designed and developed custom software applications, and designed relational database systems to support engineering modeling and analyses for litigation.

**Centennial Water and Sanitation District:** XLCRAM System Model Updates and Verification. Review, analysis and verification of Centennial's XLCRAM water resources system planning model as it undergoes updates.

**New Mexico Interstate Stream Commission:** Pecos River Data Processing Tool (DPT). Lead engineer on the redesign and redevelopment of a software system based on a relational database design that integrates the several surface water (RiverWare) and ground water (MODFLOW) models that exist for the Pecos River in New Mexico.

**South Metro Surface Water Management Model:** Lead engineer on the development of a computer model of the existing and proposed water supply systems of water providers in the South Metro area of Denver, Colorado. This model utilizes Hydrosphere's XLCRAM network modeling tool to design and evaluate complex regional water supply and distribution plans that incorporate local and imported sources as well as conjunctive use schemes using bedrock and alluvial ground water. It also integrates the results of regional and local ground water modeling (MODFLOW) with the output of Denver's sophisticated computer model of its extensive surface water supply system.

**State of Wyoming:** Wyoming v. Nebraska Litigation. Project engineer on a large litigation support team working for the State of Wyoming in the litigation involving the North Platte River.

**New Mexico Pecos River Model:** Lead engineer on the development of a model of the Pecos River for the New Mexico Interstate Stream Commission. This model is being created using Hydrosphere's XLCRAM network modeling tool and enhanced using Visual Basic for Applications programming.

**Colorado Decision Support System (CDSS):** Rio Grande Decision Support System (RGDSS) Surface Water Model. Project engineer for the development of the Surface Water Modeling component of RGDSS. Involved the understanding and use of the CDSS system including Hydrobase, the several CDSS Data Management Interfaces, and StateMod. Also designed and programmed a new CDSS component, MAKERTN, to automate the creation of the irrigation return flow input files for StateMod from the complex sets of spatial and temporal data.