

## ***Water Supply / Water Rights Engineering***

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Engineers at ACE have participated and supported numerous water rights investigations for private land developers, private and public irrigation systems, and municipal water supply. Our in-depth knowledge and understanding of Western U.S. water law has been demonstrated in the creative solutions to water rights issues.

### **General support services include:**

- River basin planning, incorporating statistical hydrologic analysis and watershed modeling techniques.
- Assessment of water rights and recommendations on acquisition and operation of water supplies.
- General water supply planning using hydrologic modeling and risk analysis to analyze firm yield and guarantee firm water supplies to municipalities and irrigation projects in a cost-effective and operationally efficient manner.
- Development and evaluation of augmentation plans.

### **Specific projects managed or participated in by ACE include:**

- Platte River Water Conservation / Supply Study, Central Platte River Region, NE: In association with Boyle Engineering, ACE participated in the investigation of water availability in the Platte River Basin. ACE participated in the development, screening and evaluation of alternatives to provide additional water to the endangered species in the Central Platte River.
- Paragon Point Water Rights Assessment, Fort Collins, CO: ACE performed the engineering and developed an augmentation plan and accounting program to enable a stream diversion/pumping plant, multiple pond, and sprinkler system to irrigate the open spaces and parks for the Paragon Point P.U.D.
- ConAgra Water Rights Assessment, Greeley, CO: ConAgra (Monfort) contracted with ACE to develop a new augmentation plan for the operation of wells supplying water to two feedlots and several adjoining farms. ACE has provided engineering support on the acquisition and sale of water rights associated with ConAgra's 1,300-acre Corporate Farms, north of Greeley. Additionally, ACE is working with ConAgra to solve a water supply problem to their packing plants and an associated water quality problem at their wastewater treatment facility; both of which require changes to their water rights portfolio.
- City and County of Broomfield Water Supply Study, Broomfield, CO: ACE staff continues to advise the City and County of Broomfield on the acquisition and operation of water rights and water supply from the Colorado-Big Thompson and Windy Gap Projects.
- Town of Windsor Water Rights Assessment, Windsor, CO: The Town of Windsor has developed several parks and open space plans, which require water supply. ACE has analyzed the future needs and operation of these irrigated areas; prepared, submitted, and received a Substitute Water Supply Plan from the State Engineers Office to facilitate immediate construction of parks; and drafted an engineering report in support of an Augmentation Plan to allow for ultimate development. ACE will act as the engineering consultant as the Town goes through the legal proceedings.

## *Water Supply / Water Rights Engineering (Continued)*

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- *Water Supply Allocation Study, Government of Peru*: Developed an allocation method for water supply in three model watersheds of Peru in support of the country's conversion to a prior appropriation system of water rights. The study was conducted for Peru's Ministry of Agriculture through the World Bank.
- *Goshen Irrigation District Litigation Support, Torrington, WY*: Litigation support for the Goshen Irrigation District, Torrington, Wyoming.
- *Little Snake River Basin Small Reservoir Project, WY*: Evaluation of 34 potential reservoir sites, including assessment of hydrologic, flood, sedimentation, water quality, and wetland characteristics.
- *Engineering Services for Graham Drainage Ditch, Weld County*: ACE provided engineering services to inventory the civil structures on the ditch, make recommendations for structural improvements and operational changes, and assess the water accounting/measurement systems on the ditch. As work progressed, ACE has also provided engineering analysis in support of water rights changes and/or sales of GDD water based on its decrees and historic use, in addition to designing and supervising the construction of measuring flumes.
- *Water Supply/Water Rights Engineering for Paragon Partners*: The private developers of this 640-acre parcel are planning residential and commercial buildings and an 18-hole golf course. ACE has assessed the water supply needs of the development and advised on the acquisition, sale, and operation of the water rights. Additionally, ACE has provided engineering services related to the irrigation water requirements and the application for a transfer of storage rights from one of the local reservoir companies to this development.
- *Water Supply Analysis for the Northern Colorado Water Association (NCWA)*: ACE has been contracted by the NCWA, a regional water supply provider, to identify ground water resources for future development and prepare an Augmentation Plan, as required. An injury impact of the ground water depletions, requiring an appropriate level of ground water modeling, and recommendations on alternative augmentation supplies will be accomplished as part of this development.
- *Poudre School District (PSD)/City of Fort Collins Water Rights Analysis and Development of Raw Water Irrigation System for Lincoln Junior High School, Fort Collins*: During an initial phase of work, ACE reviewed the water rights held by the PSD for use as raw water supply and coordinated the water supply planning with the staff of the City of Fort Collins Water Utility. Ultimately, the raw water supply was provided by rights in a local ditch company, based on the alternative costs of developing an Augmentation Plan and ground water supply system.
- *Hydrologic Analysis of Mud and Duck Lakes, Larimer County Department of Engineering*: Larimer County recently purchased, in partnership with the City of Fort Collins, these two lakes and surrounding lands and has contracted with ACE to perform a hydrologic assessment of the area and supply to the lakes. This analysis will include an assessment of the storage rights at the lakes and a recommendation, if necessary, to purchase additional rights to support the lake levels.