



Water Science and Engineering



ICF International offers a wide range of scientific and engineering fieldwork and analyses related to water resources:

- Field Sampling and Analysis Plans for Water and Biota (Marine and Fresh Water)
- Long-Term Monitoring Plans
- Watershed Management Plans
- Environmental Databases, Geographic Information Systems, and Mapping
- Chemical QA/QC Services
- Analytical Method Development
- Hydraulic and Contaminant Transport Modeling
- Design and Construction of Wetlands
- Surface Water Runoff Modeling
- Geochemical Evaluation
- Waste Water and Ground Water Collection and Treatment Systems

Drawing upon our broad experience in all aspects of water resources, including evaluation, engineering, and remediation, ICF International constructs teams of hydrologists, ecologists, engineers, geologists, biologists, and chemists to work side-by-side with clients on large, complex projects in developing cutting-edge solutions to meet specific client needs.

Featured Solutions

Water Quality Impact Analysis

ICF developed recommendations on how to decrease nutrient levels and oxygen depletion in waters adjacent to a coastal development in Cancún, Mexico. Using numerical modeling techniques, our staff analyzed engineering designs and evaluated runoff, tidal influx, channel configurations, and induced water pumping.

Ground Water and Surface Water Sampling and Monitoring

ICF developed sampling programs to assess current conditions, and to meet long-term monitoring needs for numerous hazardous waste sites. With support from project chemists, our staff executed large-scale field sampling programs, developed and implemented data question and answer and quality control (QA/QC) programs, and evaluated data to define environmental conditions, long-term trends, and data gaps.

Geochemical Evaluation

ICF developed an innovative approach to defining contaminant transport in a karst aquifer in Kentucky; designed and implemented a ground water and surface water monitoring program; and assessed discharge from ground water into local surface waters using geologic mapping, dye testing, chemical sampling, and water level monitoring.

Marine Monitoring and Sampling

ICF designed and implemented a simple and effective sampling survey of water, sediment, and biota in a sensitive environment for the Arctic Nearshore Impact Monitoring in the Development Area (ANIMIDA) program. ICF performed field sampling under difficult environmental conditions in remote areas; developed and performed specialized analyses of biota; and interpreted environmental data using statistics in support of trend analysis. Throughout the project, our staff teamed successfully with the Florida Institute of Technology.

Hydraulic Evaluation and Modeling

Using proprietary numerical models of ground water and surface water flow for numerous hazardous waste sites, ICF analyzed infiltration rates and discharges to surface water and modeled fate and transport of contaminants in the environment, identifying potential human and ecological exposure points. Our staff assessed risk to human and ecological receptors using model results, and developed a model and sampling plan to monitor natural attenuation.

Ground Water Investigation and Remediation Program

ICF conducted a comprehensive “Superfund” ground water investigation and remediation program for the U.S. Army Soldier Systems Center in Natick, MA. The program included planning, evaluation, field sampling and analysis, risk assessment, data management and validation, remedial design and construction, and operations and maintenance activities. We evaluated water supply, well quantity, and quality; conducted extensive slug and aquifer pump testing; performed ground water modeling; prepared aquifer-lake interaction studies; evaluated and reviewed wellhead delineation; performed impact analyses; and conducted independent monitoring. In conjunction with the U.S. Geological Survey, we supported a water interaction study that used radioisotope ratios to determine the percentage of lake water contribution to nearby public water supply wells. Our hydrogeologic monitoring allowed the Army to integrate environmental considerations into its site master plan, and provided scientifically defensible data to use in its negotiations with the town of Natick.

New Technologies for Providing Industrial Water Treatment Services

Through new treatment technologies that address either the water, wastewater, or reuse needs of selected target industries, ICF staff developed a strategy for growing the water treatment business. After analyzing an array of alternative technologies and water pollution problems in a range of major industries, our staff ranked and selected two target industries and three problem/technology areas, surveying potential customers in these industries before developing a strategy of licensing, acquisition, and market development.

Power-Intensive Wastewater Treatment Technologies

ICF estimated the projected sales that could be gained by encouraging an electric utility’s commercial customers to use advanced wastewater treatment technologies. We identified 12 technologies and selected two (ozonation and membranes) that offered the greatest near-term potential; considered eight key local industry sectors and selected five for a limited customer survey; reviewed the status and timing of regulatory drivers (e.g., the minimization of chlorine use) that were bearing in on these industries at that time; estimated the near-term power usage from a realistic number of installations of these systems; and recommended market and technical development programs for the utility to consider in stimulating customer action.

Water Supply Evaluation

For the state of Rhode Island, ICF developed a multifaceted water supply management plan that included a comprehensive assessment of ground water and surface water resource availability across the state. After conducting a detailed analysis and providing new and expansion development options to meet current and future water demand in the state, we evaluated the feasibility of various water supply development options.

Survey of the Water Treatment Industry

The Water and Waste Treatment Industry—ICF’s report on water treatment, distribution and use—covered the present and future status of the water treatment industry, wastewater treatment technologies, and other activities, such as desalination.

About ICF International

ICF International (NASDAQ: ICFI) partners with government and commercial clients to deliver consulting services and technology solutions in the energy, climate change, environment, transportation, social programs, health, defense, and emergency management markets. The firm combines passion for its work with industry expertise and innovative analytics to produce compelling results throughout the entire program life cycle, from analysis and design through implementation and improvement. Since 1969, ICF has been serving government at all levels, major corporations, and multilateral institutions. More than 2,500 employees serve these clients worldwide. ICF’s Web site is www.icfi.com.

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