

THE BAJAGUA PROJECT

THE BAJAGUA PROJECT

THE BAJAGUA TEAM

HISTORY OF THE SEWAGE PROBLEM

LEGISLATIVE BACKGROUND

WHAT ARE COMPLETE MIX AERATION PONDS (CMA)?

CMA PONDS OPTIMIZED AT BAJAGUA

TREATMENT CAPACITY AND RECLAIMED WATER

THE BAJAGUA PROJECT

The Bajagua Project is the wastewater treatment plant to be built in Mexico to treat 59 million gallons per day (mgd) of sewage generated in Tijuana. The Bajagua Project will be privately financed and will be constructed, owned and operated under a public/private partnership model. The design, construction and operation will be competitively bid with operation of the plant expected to start in September 2008.

THE BAJAGUA TEAM

The Bajagua Project, LLC is the private company that will enter into a fee-for-services contract with the International Boundary and Water Commission (IBWC) for the ownership of the project. The Bajagua team in conjunction with the IBWC and CILA (their counterpart in Mexico) will competitively bid the design, construction and operation of the Bajagua Project.

Enrique Landa and **Jim Simmons** are the managing members of the company. **Landa** has been successful in development in the United States and Mexico, completing hundreds of commercial, industrial, and residential developments including the Ciudad Obregon Treatment Plant, which was the first privatization plant in Mexico. **Simmons** is the founder and president of Consultants Collaborative, Inc., and has management experience with numerous environmental projects ranging from trash-to-energy plants to hazardous waste solutions. **Al Rechany** is Bajagua's Director for Operations. Rechany, an architect by profession, has 34 years of experience developing and constructing public works projects in and around the region, including the \$1.8 billion clean water program for the City of San Diego. Another member of the team includes the engineering firm of **R.W. Beck, Inc.**, an internationally recognized design and engineering wastewater treatment firm.

HISTORY OF THE SEWAGE PROBLEM

Since the 1930s, Tijuana's rapid population and economic growth has outpaced its ability to control its waste. Tijuana's raw sewage is a leading cause of the contamination of the Tijuana River Basin, Estuary, and beaches of South Bay San Diego. This has resulted in a history of emergency beach closures in the United States, impacting local economies, human health, and the environment.

To address this problem, the United States and Mexico have entered into international agreements (called Minutes) to cooperate in the construction of sewage transport and treatment facilities. The existing facilities lack the capacity to treat all of the wastewater and, further, it is not being treated to meet applicable Mexican and U.S. standards.

Both governments recognized that action needed to be taken to provide a comprehensive program for secondary treatment of wastewater generated in Tijuana. The ability to comprehensively address this problem has only recently, by private sector ingenuity, become possible. The Bajagua Project is the private sector solution designed to address most of Tijuana's present and future sewage demands and provide a potential source of reclaimed water to a region in serious need.

LEGISLATIVE BACKGROUND

In 1972, the Federal Water Pollution Control Act, a.k.a. Clean Water Act, went in to effect. The Clean Water Act was amended in 1987. One of the amendments is Section 510, which provides the United States International Boundary and Water Commission (USIBWC) and the EPA the legal authority to proceed with the International Water Treatment Plant (IWTP) in the U.S. at a 25-mgd capacity. This legal authority, along with Treaty Minutes 270 and 283, form the basis of the federal agencies' conduct so far regarding their positions toward Bajagua.

In the early 1990's, funding for the IWTP was been limited by language in Section 510 and the 1993 VA-HUD Appropriations Bill that imposed a spending cap on projects that fell under Section 510. The concern by many in Congress and the administration was that the project, at 25 mgd, would not meet current or future demand and would ultimately not address the main source of sewage based pollution in the Tijuana River Valley on the United States side of the border.

Because the original "minutes" between the US and Mexico did not allow for the construction of an appropriately sized plant and limited the location to a site in the United States, legislative action was required to provide for a minimum of 50 mgd, with the right to relocate the project in Mexico. As a result, PL 106-457 was signed into law on November 7, 2000. Title VIII of this law provided the needed authority relating to capacity and location, and further authorized the USIBWC to contract with Bajagua as the owner of the Mexican Facility for wastewater treatment services.

Subsequently, Congress reauthorized the legislation in 2003 as discussions between the two countries progressed. Following reauthorization, the IBWC and CILA adopted a new minute, Minute 311, which formalized the agreement to move forward on a public-private partnership to develop an appropriately sized sewage treatment plant in Mexico.

Treaty Minutes 270, 283 and 311 relate to The Treaty for the Utilization of Waters of the Colorado and Tijuana Rivers and of the Rio Grande, dated February 1944, which deals with the relationship between the U.S. and Mexico regarding cross border flows of surface water in San Diego and Tijuana. When agreements are reached, which further the intent of the Treaty, these agreements are memorialized as Treaty Minutes.

Treaty Minute 283 directly deals with the implementation of the IWTP. It sets forth the U.S. obligation to provide 25-mgd of secondary treatment in the U.S., and it discusses the implementation of industrial pretreatment in Mexico, construction of an ocean outfall in the U.S., and cost sharing for construction and O & M. Under Treaty Minute 283, the U.S. and Mexico reserve the right to “return for reuse” any or all of the effluent from the IWTP that originated in each respective country, meaning Mexico has the right to reuse the water generated by their country and treated at the U.S. facility. Treaty Minute 311 amended the previous minute to allow for a larger facility, as determined by an EPA Master Plan study pegging the need at 59 mgd, located in Mexico, under private ownership with the design, construction and operation to be competitively bid.

WHAT ARE COMPLETE MIX AERATION PONDS (CMA)?

A completely mixed aerated (CMA) pond system is a wastewater treatment technology consisting of parallel trains of ponds working in sequence. The CMA ponds will operate with settling and completely mixed activated sludge treatment processes. Diffusers using a fine bubble aeration system will be arranged on the bottom of the aeration basin. The wastewater in these ponds will be continuously aerated to optimize air transfer and oxidation. The CMA technology was selected by the EPA as the environmentally preferred technology for treatment of the Mexican wastewater.

CMA PONDS OPTIMIZED AT BAJAGUA

The proposed Bajagua Treatment Plant will be superior to the modified CMA technology selected by the EPA as the preferred alternative for the U.S. plant. Bajagua will build its ponds with an HDPE polyethylene pond liner system, which is a more effective solution in preventing sewage leaks into the surrounding area and ground water. Also, by adding a second set of digester ponds, not included in the EPA’s project, Bajagua promotes increased settling and treatment of sludge early in the process. Due to size of the Bajagua site, the ponds can be

modified in ways not available at the U.S. Hofer site. This will increase the time the wastewater is resident in the treatment process, significantly improving treatment levels and preventing closure of the plant due to toxic chemical spikes.

TREATMENT CAPACITY AND RECLAIMED WATER

Bajagua will treat an average daily flow of 25 mgd of advanced primary effluent from the IWTP and have the capacity to accept peak flows up to 59 mgd of sewage from other areas in Tijuana. As a result, Bajagua could provide upwards of 40,000 acre-feet of reclaimed water per year, which represents 56% of Tijuana's current usage. The Bajagua plant will comply with U.S., Mexico and California laws for secondary water reuse.

One goal of the Bajagua Project is to reclaim all or most of its treated effluent for industrial reuse, public greenbelts, and potential groundwater recharge. Reuse will offset the non-potable water demands of new and existing industries at a lower cost, and without impacting the limited potable water supply. Bajagua will help to conserve Tijuana's limited water supply and may eliminate the need for an expensive second aqueduct from the Colorado River.