

CASE STUDY:  
Abilene, Texas  
Hargesheimer WTP

<b>Application:</b>	Water Treatment Sludge Holding
<b>Design Flow (ADF):</b>	12 MGD
<b>Mixing Efficiency:</b>	≈ 0.3 HP/1000 FT <sup>3</sup>
<b>Compressors:</b>	Two (2) 20 hp Quincy QGS-20
<b>Nozzles:</b>	72
<b>Design Engineer:</b>	Enprotec/Hibbs & Todd, Inc.

## AquaBlend Potable Water Mixing System Chosen for Ferric Sludge Holding Tank

The City of Abilene’s water is provided by three nearby treatment plants — Grimes WTP, Northeast WTP, and the recently constructed Hargesheimer WTP. The three treatment plants have a combined maximum treatment capacity of 46 million gallons per day and treated ground storage capacity of 23.3 million gallons.

The city is a contract customer of the Colorado River Municipal Water District for water out of the O.H. Ivie Reservoir. A pump station and distribution pipeline bring approximately 12 million gallons of raw water per day from the reservoir into the Hargesheimer WTP.

Raw water from local surface water reservoirs undergoes complete treatment — including flocculation, sedimentation, filtration, and disinfection — in order to meet state and federal regulations for water quality. Water quality is closely monitored in all phases of production and treatment by state licensed operators.

Because it provides 50% energy savings versus coarse bubble aeration mixing technology, Enprotec/Hibbs & Todd selected EnviroMix’s AquaBlend Potable Water Mixing System to mix the ferric sludge produced from the flocculation and sedimentation process at the Hargesheimer WTP.



*Uniformly distributed nozzles headers provide bottom-up mixing*



**ENERGY EFFICIENCY**

50% or greater energy savings compared to diffused aeration mixing in sludge holding tanks



**STRAIGHTFORWARD OPERATION**

Non-clogging, self-cleaning in-tank components  
  
No mechanical or electrical components in the sludge



**PROCESS OPTIMIZATION**

Uniform mixing of tank contents during sludge draw off for dewatering, even at minimal operating levels



**UNPARALLELED FLEXIBILITY**

Mixing suitable for dense ferric sludge  
  
Compatible with any tank geometry or configuration



*Compressed air is provided by duty and standby compressors*



*A local valve module provides an operator interface for control of nozzle firing parameters*

AquaBlend reduced energy costs, minimized maintenance demands, and provided the flexibility needed for variable operating depths.

The Hargesheimer WTP was designed to utilize conventional flocculation and sedimentation with an additional treatment process of micro-filtration/reverse osmosis. The flocculation and sedimentation process produces ferric sludge. The settled sludge is pumped to a 400,000-gallon sludge holding tank, where the AquaBlend potable water mixing system fluidizes the sludge prior to being fed to a belt filter press for dewatering and disposal.

AquaBlend was the ideal choice for this application for several reasons:

- Ferric sedimentation sludge can be relatively dense, so using a conventional approach to mixing via mechanical mixers or diffused aeration can result in high energy costs. In contrast, with its uniformly distributed nozzle headers and bottom-up mixing regime, AquaBlend reduces energy consumption.
- Conventional technologies can also result in high maintenance costs — with mechanical mixers, seals do not last in the abrasive sludge environment; with diffused air mixing, plugging of the diffusers frequently occurs. Conversely, the high pressure firing of the AquaBlend nozzles via the 100 psi compressors eliminates in-tank maintenance.
- Moreover, as the sludge is pumped to the belt filter press, the operating depth in the holding tank decreases to only a few feet. This would decrease mixing effectiveness with conventional mixing technologies, whereas AquaBlend can accommodate variable operation depths.



Contact [sales@enviro-mix.com](mailto:sales@enviro-mix.com) today to discuss the ways EnviroMix can optimize your mixing solutions.