

Industrial

Date Completed:

2010

Construction Cost:

\$175 Million

Client or Owner's Rep:

Mr. Don Phillips, PE
Sr. Project Manager

Highlights:

- ✓ **Seamless Integration of KGI into EPC Team**
- ✓ **60° Hopper Bottom API Separators**
- ✓ **Sludge Thickeners with Hydraulic Lift Mechanism**
- ✓ **Thermal Oxidizer for VOC Control**
- ✓ **Wastewater Cooler**
- ✓ **Standard Operating Procedures**

Drawing: Sludge Thickener with Lifting Device

Refinery Wastewater Treatment Plant Motiva Refinery | Port Arthur, Texas

Project Description | The project included improvements to the existing 20,000 gpm wastewater plant in support of a \$6.5 billion overall refinery expansion project. With the expansion, the Port Arthur facility became the US largest refinery in terms of crude processing capacity. The refinery expansion required relocating the primary treatment unit of the existing wastewater treatment and expansion of the biological treatment units.

Services Provided | KGI was a sub-consultant to Englobal Engineering, Inc. The overall EPC contractor was Bechtel/Jacobs JV. KGI was responsible for assisting the team in developing FEL2 and FEL3 packages including preparation of Material Requisition Packages of major equipment. During detailed design, KGI assisted in review of P&IDs, HAZOP, hydraulic calculations, review of piping drawings and development of operating procedures. Some of the major improvements included:

- API Separators with 60° Hopper Bottoms and Chain Scrapers with Skimming Mechanisms. The API Separators were designed for total VOC Control System with nitrogen blanketing and purge control
- API Solids Handling System consisting of two Thickeners. The hazardous solids were sent to Coker Quenching process for final disposal.
- Provisions for future Dissolved Nitrogen Flotation Units
- Surge and Load Equalization Tanks with floating roofs
- Covered Aeration Tanks with diffused aeration system designed to operate in parallel and series
- Multi-stage aeration blowers with 1200 HP motors
- Secondary Clarifiers
- Provisions for future filtration
- Thermal Oxidizer for VOC Control
- Wastewater Cooler

