

## Industrial

### Date Completed:

2017 (Clarifier Improvements)

### Construction Cost:

\$350 Million (Forecast)

### Client or Owner's Rep:

Mr. Jared Fisher, PE  
Project Engineering Supervisor

### Highlights:

- ✓ **Seamless Integration into S&B/Marathon Project Execution Team**
- ✓ **Complicated Integrated Refinery/Chemical Facility**
- ✓ **\$20 MM Savings in Total Installed Costs**
- ✓ **Material Requisition for API Separators**

**Photo: Appreciation Email from Marathon**

## Refinery Wastewater Treatment Plant Marathon | Texas City, Texas

**Project Description** | The project included improvements to existing Storm Water Collection Systems, Process Wastewater Collection System, Wastewater Treatment, Sludge De-Oiling Unit (SDU) and Vapor Recovery Unit.

**Services Provided** | KGI was a sub-consultant to S&B Engineers, Inc. KGI provided technical assistance to the S&B Team during the Front End Engineering Design (FEED) and preparation of Material Requisition Packages for major process equipment.

KGI was responsible for evaluation of existing wastewater treatment plant and SDU consisting of Oil/Water Separation, Equalization, Dissolved Nitrogen Flotation, Pre-Filtration, Aeration, Clarification, Vapor Recovery Unit, Sludge Deoiling Process.

In addition, KGI was also responsible for performing hydraulic and process evaluations of the existing Clarifiers to handle dry weather and peak hydraulic flows. In lieu of recommending a new Clarifier, KGI provided a design for an innovative passive bypass system to handle peak flows during Clarifier turnarounds. This recommendation resulted in a cost savings of approximately \$20.0 million to the project. Marathon calls the passive bypass system as "Turbo-Charge". The design was successfully implemented and the passive bypass system was tested and in operation. The email below is an appreciation from the Client after the proposed improvements are implemented.

**From:** Anthony, Kenneth E. (MPC) <keanthy@marathonpetroleum.com>  
**Sent:** Monday, May 1, 2017 6:38 AM  
**To:** rkalluri@kalluri.us  
**Cc:** Anthony, Kenneth E. (MPC)  
**Subject:** turbo charge line Update

Ramesh, I just wanted to give you an update on your concept of the turbo charge line for our clarifiers at the WWTP. We have tweaked the original design based upon the initial use of the turbo charge line on F-10 clarifier. Currently we can charge 13,500 GPM on F-11 with excellent treatment and little use of polymer.

Your suggestion works very well and saved MPC at least 20 million dollars.

Thanks for your help.

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