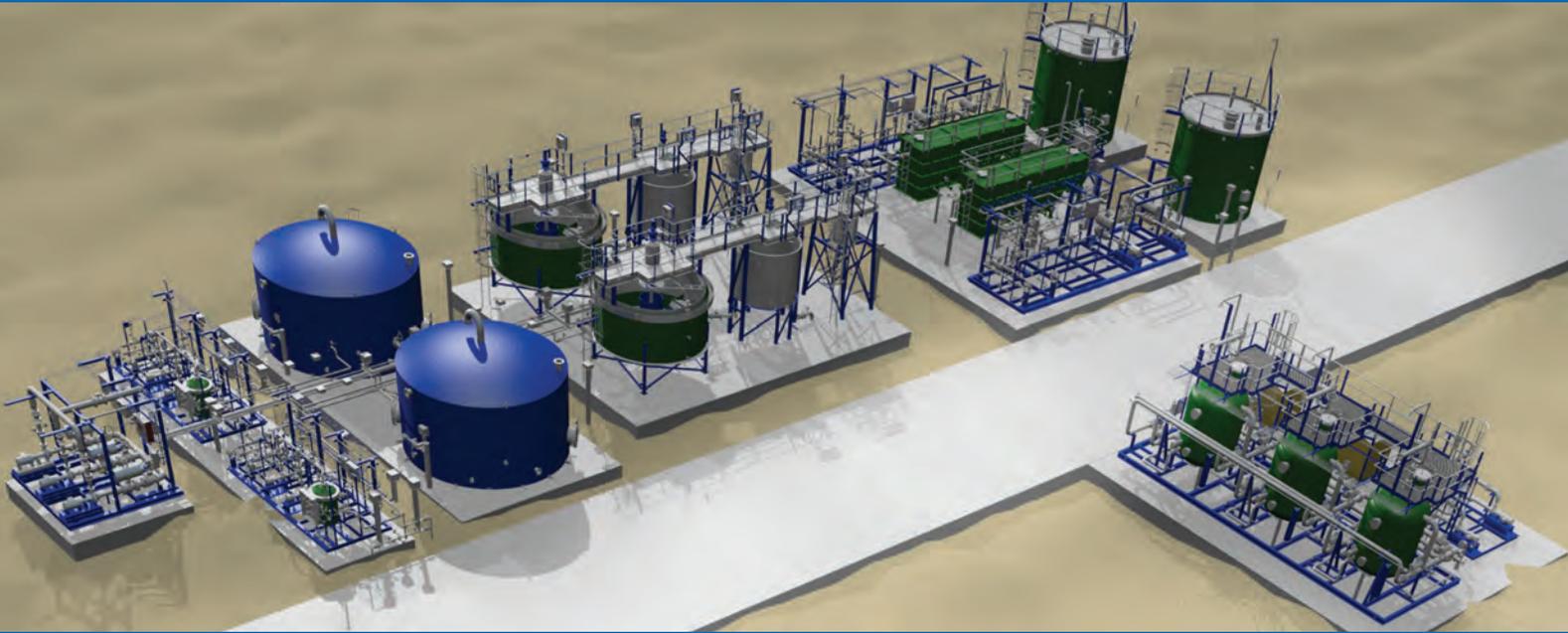


# Design-Build and Turnkey Solutions



**WESTECH<sup>®</sup>**

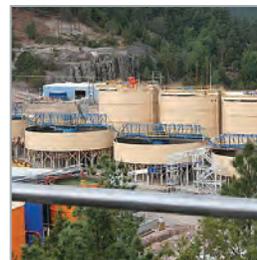
# Design-Build and Turnkey Solutions

***WesTech puts the water treatment system in your process...***

WesTech's design-build team can take responsibility for the full design, equipment supply, installation, and start-up of your most challenging turnkey projects. Coupling WesTech's proven treatment equipment with its in-house engineering and construction expertise allows facility owners and design engineers to focus on the bigger picture challenges of the overall project.

*See how WesTech's systems have seamlessly integrated into a variety of demanding applications:*

- **Power:** Raw Surface Water Treatment and Flue Gas Desulfurization (FGD) Wastewater Treatment Systems
- **Refinery:** Raw Water Treatment, Oil/Water Separation, Biological Wastewater Treatment Systems
- **Minerals:** Thickening/Paste Systems/Mine Water
- **Food:** Biological Wastewater Treatment Systems



## **Refinery: Fast-Track Design-Build Wastewater Treatment Plant**

After a tragic fire destroyed much of a refinery, WesTech provided a replacement wastewater treatment system that now allows the refinery effluent water to be recycled back through the system. The design, equipment fabrication, and installation were provided in an astonishing six-month period, which allowed the refinery to once again begin production.



## The WesTech Turnkey Advantage

- **Single point of responsibility**
- **Licensed in-house process, civil, and mechanical engineers**
- **In-house industrial construction professionals**
- **Full document-control capabilities**
- **Domestic and international expertise**
- **Custom system design and integration**
- **Quality equipment with long life cycles**
- **Superior service from concept, to start-up, and well after the project is complete**
- **Electrical and piping design**
- **Process consultation, including laboratory bench-scale, field, and pilot testing**



### Power: Turnkey Flue Gas Desulfurization Wastewater Treatment Plant

The WesTech design-build team has helped numerous power stations across the globe by providing treatment to remove sulfates and heavy metals from their waste streams. The treated water is then safely discharged into local receiving water bodies or recycled in the station. WesTech provided all the necessary turnkey deliverables from initial process and instrumentation diagrams, conceptual equipment layout, equipment supply, and wet commissioning, to effluent discharge with contaminants below permit limits.

# Elements of WesTech Design-Build Systems Capabilities

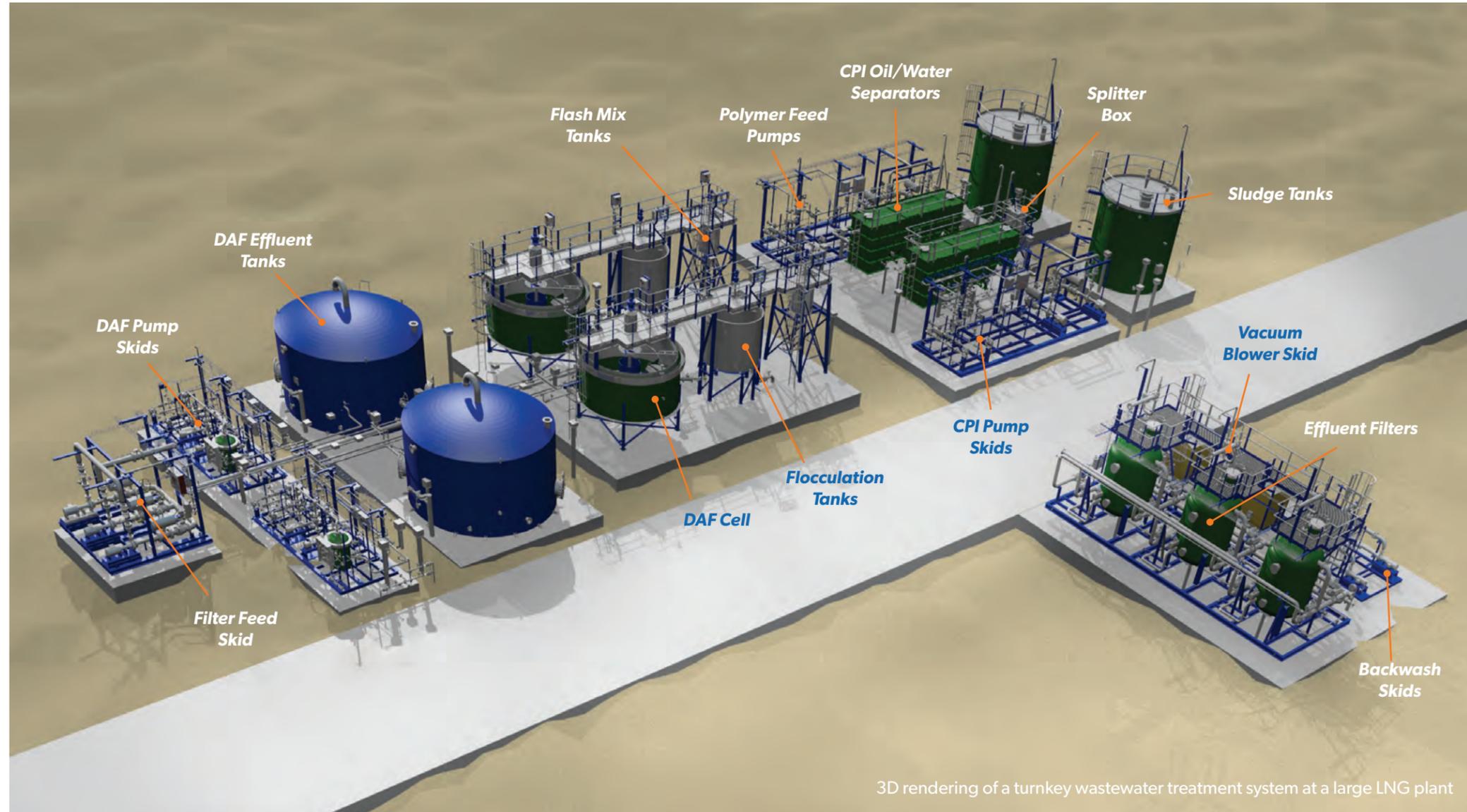
WesTech's in-house design-build team consists of a dynamic blend of process, civil, and mechanical engineers who have been teamed with construction and document control professionals. This diversified team is able to provide full design, supply, installation, and start-up responsibilities for your project.

## Benefits

- Single-system responsibility
- Schedule improvements
- Quality improvements
- Cost improvements
- Risk minimization
- Full-scope engineering capabilities: chemical, process, structural, mechanical, civil, and electrical.

## Working with the Best

- Bechtel
- Jacobs
- Foster Wheeler
- Black & Veatch
- AECOM
- TECHNIP
- Saudi Aramco
- Chevron
- TOTAL
- TVA
- Kansas City P&L
- Dominion Power
- TATA Chemical
- Enterprise Chemical
- Rio Tinto
- VALE
- Vedenta
- BASF
- CLECO
- Englobal
- Fluor Daniel
- KBR
- URS
- CB&I
- Kiewit
- GE
- Shell
- SATORP
- Valero
- First Energy
- WE Energy
- Duke Energy
- Mississippi Chemical
- Calpine
- Arch Coal
- VEHOP
- Shanxi
- REC Solar
- FMI
- RCC



## LNG Design-Build Wastewater Plant

WesTech developed P&IDs, process narratives, hydraulic calculations, and other engineering deliveries for a customer's design engineer. After engineering approval, WesTech supplied not only the major treatment equipment, but also the interconnecting piping, pipe supports, electrical cable tray, and all other components necessary for a fully functional wastewater treatment plant.

# Starting Your Design-Build Project

## Lab Services

WesTech offers complete laboratory testing facilities to assist in project planning; with specialization in filtration, sedimentation, and flotation. As needed, spectrophotometer technology gathers crucial data and delivers comprehensive reports to enable selection of the most effective water treatment options available for your most difficult process problems. WesTech bench-scale units are available for rental or purchase for use at your testing facility.



## Electrical and Instrumentation Capabilities

For nearly 30 years, WesTech's full-service electrical controls shop has built custom motor control centers for WesTech equipment and other controls applications. The capabilities range from simple boxes, to large control centers with programmable logic, to interactive touch screens and broadly versatile VFD systems. The shop is UL508A/UL698 certified and follows all applicable requirements of NEMA ICS and IEEE.

- **Instrument Selection**
- **Instrument Loop Diagrams**
- **Instrument Location Drawings**
- **Control Logic Diagrams**
- **Electrical One-Line Drawings**
- **Wiring Schematic Diagrams**
- **Electrical Load List**
- **Electrical I/O List**
- **Motor Control Centers**

## Pilot Systems

Following analysis from the lab, WesTech can deploy a pilot system to ensure the water treatment options selected can optimize results and ensure success of a full-scale system. Once the pilot plant is proven successful, a full-scale system can then be deployed.

WesTech has piloted systems for:

- **Mine Water**
- **Paste**
- **Manufacturing**
- **Oil Sands**
- **FGD**
- **Tailings Run-Off**



*Mine Water Treatment Pilot Plant*



*Custom-Built PLC Cabinet for Turnkey Projects*



*Complete Water Treatment System*

# Deliverables



## Engineering Design and Project Management Services

WesTech's engineering and project management services start with conceptual designs, see the customer through to detailed designs, and then guarantee success all the way through start-up. WesTech's process equipment has proven to be reliable and cost effective around the world in scores of liquid-solids separation processes.

### Project Management

- **Project risk assessment plan**
- **Project execution plan**
- **Manufacture of data books**
- **Progress reports/schedules**

## System Design

- **Process Flow Diagrams**
- **Mass Balances**
- **Piping and Instrumentation Diagrams**
- **Layout/Plot Plans**
- **HAZOP Review**
- **SIL Study**
- **Cause and Effect Diagram**
- **Interconnecting Piping Design**
- **Piping Single-Line Diagrams (2D)**
- **3D Modeling**
- **Hydraulic Profile**
- **Lists (Equip, Motor, Inst, Valve, IO)**
- **Health/Environment and Safety Docs**
- **Control Narratives**
- **Area Classification Drawings**
- **Civil Site Layouts**
- **General Arrangement Drawings**

## Global Reach

WesTech equipment comes with the support of a global network of experienced engineers and qualified sales agents. WesTech maintains offices and partnerships throughout the world to give you access to our products and services. Contact WesTech to arrange a visit with a local representative in your area.





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