

# CASE STUDY

# CADWorx & Analysis Solutions



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## PRODUCT INDEX

Intergraph CAESAR II®

Intergraph CADWorx®

Intergraph SmartPlant® Instrumentation

## INDUSTRIES SERVED

• Renewable Energy



## Richard Design Services saves 100,000 engineering hours with Intergraph Solutions

Headquartered in Beaumont, Texas USA, Richard Design Services is a full-service engineering company providing front-end development of detail design for both large and small projects. The firm's 550 employees provide expertise for clients across the region.

Richard Design Services provided engineering for a renewable diesel facility in Norco, Louisiana capable of producing over 10,000 barrels per day (BPD) of diesel from inedible oils and other waste feedstock. A joint venture of Darling International and Diamond Alternative Energy, a Valero subsidiary, the project included the hydrotreating facility, the pre-treating facility, storage tanks, rail off unloading facilities, and offsite installations.

The assignment covered front-end development, detail design and design management, and the project included 200,000 linear feet of pipe, 450 pieces of equipment and pipe ranging from 1.5 to 24 inches in diameter. The USD 360-million project is the largest renewable diesel facility in the United States.

### Meeting challenges of fast-track schedule

The Norco project required fast-track engineering while still developing the final design, with a 12-month engineering schedule and 22-month overall schedule that would require many man-hours of work by Richard Design Services engineers and technicians. To address these challenges, the company chose Intergraph® CADWorx® Plant Professional, CAESAR II® and SmartPlant® Instrumentation for an integrated approach.

“A project of this size using other programs would have taken an estimated 300,000 man-hours,” explained Michael Tran, design coordinator at Richards Design Services. “With CADWorx for design, we were able to complete it in 200,000 man-hours, cutting the time by one third.” Using CADWorx for design and interfacing with CAESAR II for pipe stress analysis, engineering was able to fabricate the piping isometric drawings well before engineering was completed.

“The clients were very satisfied with the end product,” Tran said. Without these tools, the schedule would have slipped and incurred an estimated 100,000 or more additional project hours. Using CADWorx and CAESAR II, they produced pipe isometrics, stress analysis reports, structural design drawings, piping plans, and other deliverables.

### Benefiting from Intergraph CADWorx and CAESAR II efficiencies

The isometrics were given to pipe fabricators for spooling, and the stress analysis technicians were able to use the output from CADWorx Plant Professional for stress analysis. This saved the firm many project hours when compared to what would be possible with other design programs.

Richard Design Services produced over 6,500 isometric drawings automatically and provided accurate quantities for pipe and structural by using CADWorx to produce automatic bills of material, all while avoiding schedule slips. This was the largest renewable diesel facility in the United States requiring over 65 specifications and thousands of isometric drawings. From start of engineering to completion was just 23 months, and the project's 10,000 BPD design is currently operating at over 11,000 BPD.

## Intergraph CADWorx & Analysis Solutions

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