CASE STUDY 30,000-GALLON TANK CAR DESIGN

Company Profile

A North American manufacturer enters the railcar construction industry.

Business Challenge

The client requested BNSF Logistics' assistance in developing a complete tank car railcar design for submission to the Association of American Railroads (AAR) for approval of unrestricted interchange. A complete set of drawings and a Finite Element Analysis (FEA) report that included stress and fatigue analysis were required for the final submission.

Solution

To design a tank car with a capacity of 30,000 gallons that can also support a gross rail load of 286,000 pounds, the engineers at BNSF Logistics took the governing railcar specifications very seriously and gave them careful consideration. Validation of the design was accomplished through the use of FEA (Finite Element Analysis) techniques. Additional structural load requirements for the nozzle and manway component assemblies were evaluated with the help of an inspection.

Process / Procedure

BNSF Logistics completed the final design by thoroughly comprehending the customer's needs and the AAR's tank car structural requirements.

- Worked closely with the customer to create a satisfying product design
- Performed AAR-compliant stress analysis, including tank car-specific load cases
- o Completed all design work and final structural analysis report

Benefits Achieved

- o Created a new tank car design with a complete drawing package
- Submitted AAR-compliant stress and fatigue report
- Met and exceeded customer's expectations







Engineering Services

Get the job done right the first time with the expert engineering team from BNSF Logistics. Our mechanical, industrial, and civil engineering team provides a distinct advantage. They specialize in ensuring your asset and location needs are anticipated and modified to specifications and are dedicated to continuously developing innovative solutions to make your transport projects a success. So don't wait - contact us today to get started.