

CASE STUDY

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30,000 Gallon Tank Car Design

Company Profile

North American manufacturing company entering the railcar build industry.

Business Challenge

The customer sought BNSF Logistics' expertise to develop a complete tank car railcar design to submit to the Association of American Railroads (AAR) for unrestricted interchange approval. Final submission required a full drawing package and a Finite Element Analysis (FEA) report that included stress and fatigue analysis.

Solution

BNSF Logistics' engineers carefully reviewed the governing railcar requirements to produce a 30,000 gal tank car design capable of carrying a gross rail load of 286,000 lbs. Finite Element Analysis (FEA) methods were used to verify the design. Additional structural load requirements were inspected relating to the nozzle and manway component assemblies.

Process/Procedure

BNSF Logistics completed the final design by thoroughly understanding the customer's needs and AAR's structural requirements relevant to tank car builds.

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

Benefits Achieved

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

