

Project Scope:

Great Northern Engineering provided design and construction oversight of a new petroleum products receiving and pumping facility. The facility is located at the Port of Anchorage and is the primary source of fuel for the SAC Command Base, at Elmendorf AFB.

The design for this system required a new, customized building to house the receiving metering equipment, pumping equipment, filtration equipment, additizing equipment and valving for directing the product movement. A new control room was required to monitor the incoming product filling the tanks; and, to control the pumping system to deliver product to the base facilities and the railcar loading rack. Design a 10 rail-car loading rack, complete with vapor control and spill containment. Design a spill containment and collection system, including a drainage system to an underground fuel water separator and spilled fuel storage tanks.

The integration of all of the elements required extensive design analysis and simulation testing to ensure the entire project would achieve the desired results.

Project Detail:

- Designed computer controlled pumping system to accomplish 19 functional modes
- Pumping can circulate the product between tanks to accomplish additization, filtration, or inventory control
- Pumps are capable of filling six rail cars at one time at a rate of 600 gallons per minute
- Pumps and valving configuration are controlled in a control room that uses computer graphics and programmable logic control
- Additization is accomplished using a turbine driven positive displacement pumping system that injects three additives at a constant rate equal to the flow in the pipeline.

