

Tanker Simulation Model Problem Statement

Tankers arrive periodically at a harbor and discharge their cargo into shore tanks. When a shore tank is full, or nearly so, its contents are automatically transferred to the refinery. While this transfer is taking place, a shore tank may not be filled by a tanker.

Model data

Timings in hours:

Tanker arrival rate negexp: 0.125/hour

Setup time for pump constant: 0.5 hours

Pumping rate constant: 1000 tons/hour

Discharge rate constant: 4000 tons/hour

Capacities in 1000 ton units:

Tanker loads: 15 .. 25 equally likely

Shore tank volume: 70

Run the simulation for 1000 continuous hours with 5 shore tanks. Take as initial conditions that two shore tanks are empty and free, one is currently discharging and will be free at 8 hours, and that the other two are currently being loaded and will be freed at times 12 (with 45 units still free) and 3.5 (with 25 units free) respectively. The first tanker arrives at time 0.0.