

217' JET A1 TANK | REFINERY

JET FUEL



OVERVIEW

A critical jet fuel tank at a major refinery could not come offline without significant operational impact to the terminal. The client had a strict 5-day window to complete a full API 653 inspection of the 217-foot diameter tank, a challenging constraint for any conventional approach.

SOLUTION

Square Robot deployed its submersible autonomous robot to perform an in-service API 653 inspection. The team prioritized critical zones and executed a 'wagon wheel' inspection plan, maximizing phased array ultrasonic testing (PAUT) coverage across as many floor plates as possible within the tight schedule. The robot navigated complex internal structures, including 49 columns and additional nozzles, while the tank remained fully operational.

OUTCOME

Square Robot successfully inspected 184 of 197 floor plates within the 5-day window. Inspection data was paired with an Extreme Value Analysis to deliver a comprehensive assessment. The client achieved a 15-year inspection interval and avoided the logistical burden of taking the tank offline.

KEY IMPACT METRICS

- ✓ Eliminated > 2,900 confined space entry hours
- ✓ \$3,000,000 in documented cost savings
- ✓ 52,000 lbs of CO₂e emissions contained
- ✓ 184 of 197 floor plates inspected in 5 days
- ✓ 15-Year API 653 inspection interval achieved