

How Shell Deer Park Built a First of Its Kind Drone Aerial Response Team

Twenty miles east of Houston, Texas is Shell Deer Park - one of the largest petroleum and chemical refineries in the United States. Covering more than 2.5 square miles, it's a small city with its own medical facility, fire department, marine docks, railroad, and utility system. This strategically placed hub has a crude oil capacity of 340,000 barrels a day, connecting pipelines and production with transportation and shipping.

In this kind of environment, risk is everywhere and safety is the priority that all priorities report to. A culture of safety relies on high quality standard operating procedures (SOP), large scale inspections and effective communication.

In early 2017, Shell Deer Park began to develop an in-house UAV capability that would transform many of its core safety, inspection and emergency response processes. The Drone Aerial Response Team (DART) as it would become known as, first took on the task of visually surveying its external floating roof tanks, a process that normally took weeks.

YEAR ONE OF THE PROGRAM: ROI BY THE NUMBERS



477
Flights Logged



139
Flight Hours



212
Employee At-Height Inspections
Eliminated



\$1.2
Million Estimated Cost Savings



Flying within the secured Aloft (formerly Kittyhawk) platform, missions that used to take weeks take hours.



“We have eliminated costs for scaffolding and cranes, reduced time on tools and removed the risk associated with putting a person at height to perform the inspection. If it's about inspecting something at height, why can't the drone help do that instead of putting a person at risk?”

JOHN MCCLAIN
Shell Deer Park - DART Chief Pilot

Streaming Transforms Emergency Response Intelligence and Damage Assessment

In 2017, the greater Houston metro area was devastated by Hurricane Harvey. This 1,000 year flood event brought over 40 inches to the area over a four day period. During the aftermath of Harvey, some of the refinery's cooling fans overheated because its supply of liquid nitrogen had been disrupted.

Before the fans could be restarted, a damage assessment had to be performed. As part of that process, DART reviewed 237 cooling fans in one and a half days. Collecting and sharing photos and video captured while flying in Aloft greatly accelerated the return time of the facility.



Post-Hurricane Harvey, DART would visually survey 4 cooling units in a 15-minute inspection mission that otherwise would take 2 hours.

“We were able to get the facility back up and running faster than any other post-hurricane event because the damage assessment was done so quickly from the air, via the drone. There’s probably not a department in the facility that we have not touched. We have truly changed the game when it comes to working at height in the inspection process.”

JOHN MCCLAIN
Shell Deer Park - DART Chief Pilot

Customer Inspired Product Development

“Our live streaming product is a direct result of the Shell team identifying a very clear and highly valuable new capability for drones. An encrypted live stream that enables group communication and can be securely shared to any connected device has been ground breaking. The time scale of information gathering changes dramatically and the safety and inefficiency benefits are immediate and measurable.”

JON HEGRANES
Aloft CEO and Founder

