

USE CASE

Μαύρος Χρυσός 2019 (Black Gold 2019)

Refinery Fire Fighting Exercise with Hellenic Petroleum



Context

Founded in 1998, HELLENIC PETROLEUM is one of the leading energy groups in South East Europe, with activities spanning across the energy value chain and presence in 6 countries.

A refinery fire presents not only an immediate risk to life, but can also create a natural disaster and have severe financial implications. An effective response is crucial to preserve life, prevent the subsequent impact on the environment, and limit the financial loss which can reach billions of dollars. Live and persistent aerial imagery is a critical tool to help responders act efficiently and provide situational awareness of an incident which could cover large areas of real estate. With this in mind, Hellenic Petroleum and the Greek national authorities simulated a major accident:

A fire broke out after the crash of a tractor into a pipeline junction connecting two Hellenic Petroleum Refineries and two other oil and gas companies. To ensure the best possible coordination between the National Fire Brigade, the Police, and Ambulance services, Hellenic Drones SA* provided a persistent live aerial stream of the incident with a DJI Inspire 1 tethered to Elistair Ligh-T power station.



The advantage with a tethered drone is to fly for more than the battery life, and have a clear picture of the site to communicate better with the authorities and our central offices.

Lialios Asterios, Hellenic Petroleum South Hub HSE Manager



Fire & Rescue

The drill involved a vehicle accident causing one casualty and a pipeline fire. Both incidents needed the intervention and coordination of security and safety professionals; the management of which benefited hugely from the persistent aerial view.



1 Tethered drone

Hellenic Drones SA was equipped with an Inspire 1 for this mission. Tethered to the Ligh-T station it received continuous power to survey the whole scene for several hours with no need to land and change batteries.



Live surveillance

The full operation was transmitted directly to the control room where the head of the fire department in charge of coordinating the actions was located. This meant he was able to take the right decisions at the right time based on real time intelligence.



8 Minutes Setup

It took only 8 minutes for Hellenic Drones SA to set up the tethered drone equipment and start live streaming imagery of the incident.



3 Kilometers

The practice incident took place at the junction of two major Hellenic Petroleum refineries and two other oil and gas companies. The tethered drone captured the full incident and helped monitor the safety vehicles comings and goings within 3km.



1 Control Post

The incident command point was located 1 km away from the drones operating area. With RTMP (Real-Time Messaging Protocol) and 4G network all images were instantly transmitted from the pilot's tablet to the CP screens.



ISSUES & NEEDS

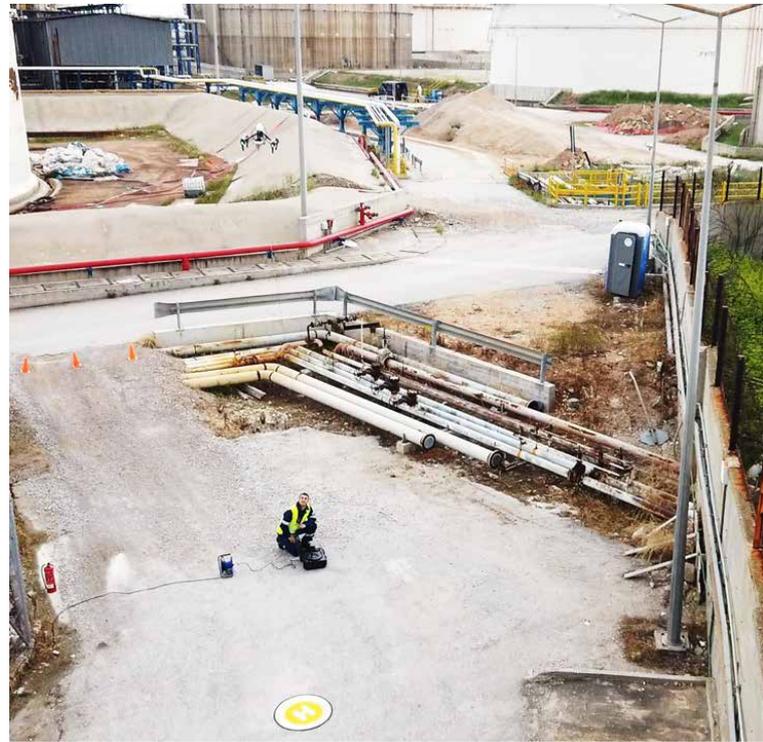
Continuous Fire and Perimeter surveillance

For incidents in high risks environments such as refineries; safety and security teams need to be extremely well coordinated in order to react effectively. With one casualty and a fire threatening multiple refineries; Hellenic Petroleum along with the Fire Department and the National Police needed a persistent live aerial view of the entire zone .

Sensitive Area: To control the fire threatening Oil and Gas infrastructures while preserving the first aiders' safety, emergency teams needed a live detailed picture of the situation. The quick deployment of the tethered drone allowed them to immediately identify the dangers, target the interventions point, and secure the perimeter before committing firefighters into this dangerous area.

Coordination of Multiple Actors: In such a hazardous situation, the combined intervention of the Fire brigade, Police and Rescuers requires clear communication and up to date situational awareness. Overwatch of the incident scene is key to allow accurate decision making and passage of information to all teams.

Safe Persistent Aerial View in a Complex Site: The exercise took place in a complex and sensitive industrial site with a permanent no fly zone. Hellenic drones SA obtained specific authorization to operate due to the tether preventing the risk of fly away.



The site complexity, imminent danger and actors from multiple agencies required precise coordination and support.



With the tethered drone we were able to monitor the fire for very long hours. We didn't have to land the aircraft to change the batteries and loose some crucial time monitoring the accident
Vasilis Skliros, Hellenic Drones SA Co Founder

SOLUTION

Hellenic Drones SA deployed their Inspire 1 tethered to an Elistair Ligh-T power station, near the incident. The drone operators quickly set up an aerial overwatch which remained airborne for the whole duration of the exercise. This unique view was instantly transmitted to the command post providing the security manager and the head of fire department with a crucial deep knowledge of the situation to conduct the operation.

Secured: The distance the drone can fly is restricted by the length of the tether avoiding risks associated with fly away. In addition, by using the T-monitor application, the pilots have access to the health and usage data which mitigates risk of power loss.

Persistent: Once tethered, the drone receives continuous power which considerably enhances its endurance. In case of a power cut, the backup battery will automatically take over to ensure the drone remains airborne and the pilot can carry out a safe landing.

Mobile: Compact and easy to deploy, the tethering system is well suited for a rapid response in complex environments.

MISSION PROCESS

After obtaining special flight permission from the Hellenic Civil Aviation Authorities, Hellenic Drones successfully deployed its tethered drone and monitored the accident area for the full duration of the exercise. Fire department commanders were able to issue instructions to the rescue teams based on real time data; provided through live streaming images obtained from the tethered system.

Set up: Once on site, Hellenic Drones SA only needed a 15 meters diameter flight zone to operate from. From arrival to take off, it took 8 minutes to the team to start providing overwatch.

Control Post: The command post was located 1 km away from the fly zone. Full HD images were directly retransmitted from the pilot mobile phone to the control screen through a Facebook live application.

Results: With the Ligh-T, Hellenic Drones SA easily obtained a flight authorisation and provided live images to the Head of Fire department in charge of coordinating the operations.