

Spherical Butane Gas Tank Inspection

Customer

Oil & Gas refinery (confidential)



Inspection overview

Inspection of the inside of a spherical gas tank to verify the weldings and general condition.

Pre-Planning / Planning / Process / Customer Need / Acceptance Criteria

The single tank to inspect was a 12 meters wide sphere under renovation. Instead of sending a technician inside the tank, which may have had residual dangerous gas in it even though it had been cleaned, the Skycopier indoor drone allowed to complete a visual inspection safely.

The only accessible manhole was on top of the tank. The flight plan was divided in two parts: a generic inspection from the center and a close up of part of the weldings. Service pipes run vertically down the tank, making some part of the inspection more difficult. A tethering system

has been used to drop the drone in the tank from the top manhole. An operator worked in coordination with the pilot to constantly manage the length and tension of the wire.

The customer needed a detailed video to decide the level of renovation for the internal part of the structure.



Environmental and Conditions

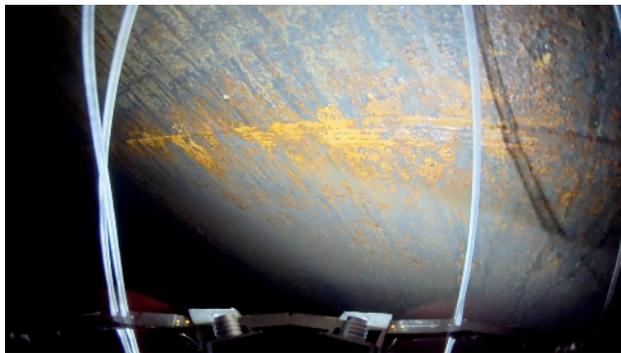
The mission was pursued completely indoor and beyond visual line of sight.

FPV goggles and screen have been used to navigate the environment. Extender cables allowed to bring the control transmitter and video receiver antenna in the tank.

No flammable or radioactive fluid was expected.

Visual Inspection Results / Lessons Learned / Confidence Level

The visual inspection offered satisfying results and answered the customer's need. The inside of the tank was painted matte black, making illumination difficult when far from the surface. An experimental illumination system was used to get better results.



The lesson learned in this inspection was the difficulty to keep track of the weldings already inspected and those still to capture. A coordinated work and constant communication between pilot and inspector allowed a precise track of the operations.

The mission was completed in two days, during the first day, which worked mostly as a pre-inspection, the team found out which changes to the configuration of the drone were needed to complete the work with success.

Benefits of Using the Skycopter technology

The traditional way to inspect this kind of tank is sending an operator inside it from the top, with big safety risks and long time to prepare the needed rigging. Using the Skycopter allowed to reduce inspection times and reduce risks, providing significant overall cost savings for the project.



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