



Asset Care Counts

September 2016

Remote Piloted Aircraft — Saving Cost, Improving Safety without Sacrificing Quality

Challenging the Process of Inspecting Boilers

The cost of providing access for critical inspections is constantly under review for new innovative solutions.

For internal inspection of large power boiler furnaces, access techniques have developed over time from full scaffolding, to swing stages and, in more modern times, to the use of rope access services (refer [Rope Access for Boiler Inspections](#)).

Each improvement in access has led to reduced outage/shutdown delays and access costs. Furthermore, in many cases, these improvements have also delivered improved safety outcomes.

ALS has now innovated to the use of **Remote Piloted Aircraft (RPA)** (earlier described in Industry as Unmanned Aerial Vehicles (UAV) and Drones). This technology can further reduce the costs of gaining access to critical plant and equipment for inspection and improve safety.

The Challenge — Internal Inspections

ALS was recently approached by our client to complete an inspection of a boiler and its burner assemblies during a plant shutdown.

For efficiency of service delivery, **Internal RPA** was selected as the method for visual inspection.

The RPA device provided full high definition images and video upon which ALS qualified inspectors

advised the client as to the condition of critical boiler elements.

For this application, the device used is encased in a spherical plastic shield, which allows the RPA to approach critical areas up to the point where the shield can touch.

The configuration of the camera allows excellent focus at this short focal length, revealing critical features of the plant being inspected.

The shield is made from a soft plastic which provides cushioning under contact, preventing damage to both the camera and assets under inspection.



Figure 1: The shielded RPA



The images from the inspection are shown below and clearly show relevant evidence of deterioration upon which maintenance decisions can be made.



Figure 2: Visible Cracking detected from the RPA



Figure 3: Distorted Burner Elements visible from the RPA

Inspection Standards Met, Savings Delivered and Safety Improved

With quality inspection outcomes gathered as a minimum standard, Internal RPA technology then leverages cost and safety benefits through

minimising the need to enter confined spaces, install access equipment and work at heights.

In this circumstance the **overall savings** from providing RPA inspections was estimated by our client to be **Tens of Thousands of dollars**.

The Broad Applications of RPA Technology for Inspection

By combining qualified inspectors and engineers with innovative access techniques such as RPA, ALS provides a combination of service delivery that makes understanding asset condition easy, cost effective and safe.

RPA has broad applications to internal inspection, inspection at height, in difficult access conditions, and frequently in any location where you might ask:

‘Is sending a person to physically look at that item the safest, most cost effective solution?’

When you find yourself asking this question, our expert staff will promptly help you find the right answer.

As Always, Backed up by ALS’s Broad Team

As a multidiscipline services provider, ALS possesses both the skills to provide the key facts upon which you can make decisions, together with engineering expertise as needed to help those decisions provide the best outcomes for your business.

For further information or to enquire about services, please contact:

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