

# The heat is on

RAY COX FROM LANDAIR SURVEYS OFFERS AN AERIAL SOLUTION TO IDENTIFYING LANDFILL HOTSPOTS WITH DRONES AND THERMAL CAMERAS.

There is an old axiom that states “prevention is better than cure”.

The phrase emphasises taking action in the here and now before a potential problem escalates, requiring significant remedy.

This principle of being proactive rather than reactive has many examples in modern life. In the medical sphere, all are encouraged to take preventative action against harmful lifestyle choices that inevitably lead to future medical issues. In the financial realm, reserve banks set interest rates and government agencies implement economic policies to stave off recession. Environmentally, taking action now significantly limits the likelihood of future catastrophe.

The same principle applies to landfill operations. Liner and leachate systems are preventative measures to stop environmental contamination and the associated remedy costs. Another preventative measure highlighted in most landfill license conditions is detecting and monitoring landfill hotspots.

Landfill hotspots are areas of

increased temperature that point to the presence, or likely future occurrence, of subsurface fires. They can be detected in a number of ways, including changes in leachate temperature, higher surface temperature readings, escaping gas or smoke and unusual cap settlement.

Often the approach to detect hotspots is time consuming and labour intensive. To regularly walk over closed landfill cells looking for problem areas becomes increasingly impractical as the landfill footprint grows. Even by walking a 20-metre grid over a landfill cap, there remains the very real possibility important warning signs are missed.

Landair Surveys utilises state-of-the-art thermal cameras attached to drones to quickly and effectively to identify potential hotspot locations. Using surface temperature data stored in the imagery, a whole-of-site thermal map can be created to spatially locate high temperature readings that require further investigation. This spatially accurate thermal map can also be draped across a 3D surface created from the drone images to give a virtual,

interactive view of the increased temperature locations.

Hot spot detection has risen in importance of late. As recent as October 2018, EPA Victoria issued a fine for over \$8000 to a Victorian council in breach of their landfill license conditions relating to hotspots. A smouldering fire broke out in an older part of the landfill. Temperature readings taken on location by the local fire authority found the hotspot had reached surface temperatures up to 100 degrees Celsius. Investigations undertaken by EPA Victoria found the landfill had no formal procedure for identifying hotspots in older parts of the landfill.

Hotspot detection is an important aspect of landfill operations. Regular thermal flyovers of active and capped landfill cells can be a key tool in fulfilling EPA licence conditions. By proactively identifying hotspots before they turn into fires, the potential for large-scale remediation costs are significantly reduced. As the axiom goes, prevention is better than cure. ■

