

## Dry-Flo® Commissioning: WestConnex NEW M5 Road Tunnel, Sydney Australia

### Project Brief

WestConnex is a 33km underground motorway construction project that will connect Sydney's western suburbs to the International Airport and Port Botany.

As part of the commissioning phase of the 9km NEW M5 section, 678 deluge sprinkler systems were required to be tested in accordance with NFPA 25 guidelines to confirm their function as designed. Conventional 'wet' testing – involving flowing high volumes of water through each zone - was unattractive due to the impact on ongoing construction activity, the potential for water ingress in to electrical equipment and the requirement for water supply & contaminated waste-water treatment and disposal.

### Solution

Paradigm applied its Dry-Flo® technology to systematically test each zone using low pressure compressed air, delivered in to the system via a connection immediately downstream of the deluge valve.

Dry-Flo® Wireless Pressure Sensors and specialist Commissioning Nozzles were installed and recorded the pressure drop at each nozzle port. Test data was wirelessly transmitted to a Compact Control Module (Figure 1), and imported in to the Dry-Flo® software package which calculated a virtual flow rate based on the pressure response at each deluge nozzle.

These results were automatically evaluated in real time against the zone's design flow rates, as set out in the Fire Engineering Report, and a pass / fail awarded based on the client's acceptance criteria.

### Outcome

- 678 zones successfully tested to NFPA 25 guidelines over 13 weeks
- 75% reduction in average test time per zone versus wet testing
- Saving of over 11 million liters of water (equivalent to 4.5 Olympic-size swimming pools) and 528 Water Truck journeys\*\*
- No impact on adjacent operations or water damage to mechanical & electrical equipment
- Direct cost saving by negating requirement for water supply, treatment & disposal
- EPCI contractor nominated for environmental best practice award



Figure 1: Engineer operating the Compact Control Module

### What is Dry-Flo®?

- Digital technology for testing water deluge systems, without water.
- Dry-Flo® detects changes to deluge system performance including missing, blocked and incorrectly sized deluge nozzles.
- Anomalies pinpointed to individual branches & nozzles.



Figure 2: Technicians installing wireless pressure sensors

\*45 minutes per zone versus 150 minutes per zone (wet test time is based on actual water flushing operations undertaken to remove debris from the <5% of zones that were classed as a fail).

\*\* based on a typical large Water Truck of 21,000 liter capacity, journeying to and from site.