

SUCCESS STORY

AIRPORT UTILIZES VLI SMOKE DETECTORS AND ECO GAS DETECTION TO PROTECT THE LONGEST RUNWAY IN CANADA AND NEW OVERPASS

ABOUT END USER

Calgary International Airport (YYC) was established in 1914. In 1938, the facility moved to its present location in Calgary's northeast and was christened McCall Field, in honor of Captain Fred McCall, a World War I flying ace and one of Calgary's pioneer aviators. Today, YYC is a world class facility committed to creating a positive, engaging experience for passengers and to setting the standard for the industry.

YYC boasts 185 shops, restaurants and services, as well as two hotels, a 296-room four-star Delta Hotel and the latest addition, Marriott In-Terminal Hotel with 318-rooms. The two terminals offer eight designated children's play areas in addition to a space-themed visitor attraction - Spaceport. Over 24,000 people are part of the airport community and the Calgary Airport Authority is a major contributor to the prosperity of the Calgary region with a total GDP impact of \$8 billion.

THE CHALLENGE

The property required a new runway to accommodate an increase in aircraft landing capacity and larger aircrafts – the expansion project consisted of 15 new taxiways, an aircraft parking apron, field electric centre and 11 kilometres of service roads.

Part of the expansion included plans for the longest runway in Canada - 4,270 metres long by 60 metres wide. The six-lane tunnel under the runway is 620 metres long. Also, two taxiway underpasses are 32 metres wide by 61 metres long and 13 metres wide by 166 metres long.

Special fire safety systems were used to satisfy the safety requirements in the traffic tunnels. To start, additional concrete cover was provided, and a cementitious product was also sprayed on the ceiling to provide for increased resistance to fire and intense heat that could be generated by a catastrophic motor vehicle accident. Further, the tunnels required a smoke detection system to monitor air quality and automate exhaust fan controls.

THE SOLUTION

The nature of airport business is flights with no downtime or delays; therefore false alarms are unacceptable as they interrupt their customers' overall travel experience. The only practical form of fire detection for their tunnels is industrial and gas detection.

Industrial VESDA VLI (10 units) coupled with VESDA ECO gas detection (32 units) by Xtralis were selected by the customer because of ease of installation, maintenance and superior detection, given the challenges of the outdoor tunnel and runway. Additionally, the system meets NFPA Code 502, "Standard for Road Tunnels, Bridges, and Other Limited Access Highways" requirement. Technicians are able to access the VLI to inspect, clean and review them without disruption in traffic or flight delays. This is due to the ability to house the detectors in environmentally controlled cabinets with ease of access. The ECO actively monitors the vehicular tunnels for CO and H₂S along with excessive smoke.

THE OUTCOME

Upon the detection of smoke or noxious gas, 32 100-horsepower jet fans located throughout the tunnel (with four sets of four fans in each cell of the tunnel) are turned on. Noxious gasses are exhausted with traffic in the cell of the tunnel where they are detected, using less than half of the fans. Smoke is evacuated using all the fans in the tunnel, and are automated to blow in the direction of traffic in the cell the smoke is detected (fans in other cells blow in reverse).

VESDA® VLI



This was set up to eliminate the cycling of smoke from the affected cell into the “clean cell.” This will also allow firefighters to get as close as possible to the source of the smoke (presumably a fire).

The solutions that came together to create the extensive expansion at the Calgary International Airport Runway and Airport Trail Tunnels have resulted in recognition of the Canadian Consulting Engineering Award of Excellence.

ABOUT VESDA VLI

The VESDA VLI is an industry first early warning aspirating smoke detection (ASD) system, designed to protect industrial applications and harsh environments. The VLI detector combines a fail-safe Intelligent Filter with an advanced clean-air barrier for optics protection allowing the use of absolute detection and a long detection chamber life without the need for re-calibration.

- Suitable for Class 1 Division 2 applications
- Easy mounting with steel support bracket for ease of installation
- Low maintenance with field replaceable parts, saving both time and expense
- Long range up to 360 m (1181 ft)
- Clean air barrier for optics protection and Intelligent filter dramatically reduces false alarms in harsh environments

ABOUT PROJECT MANAGEMENT

CH2M HILL, also known as CH2M, is a global engineering company that provides consulting, design, construction, and operations services for corporations, and federal, state, and local governments. The firm’s headquarters is in Meridian, an unincorporated area of Douglas County, Colorado, in the Denver-Aurora Metropolitan Area.



ABOUT INSTALLER

Established in Edmonton more than 70 years ago, Associated Engineering specializes in planning, studies, assessment, design, construction, training, and operational assistance. Employing around 900 staff in 21 offices across Canada allows them to meet demand quickly. They remain a uniquely Canadian consulting company. www.ae.ca



Project:

Calgary International Airport

End User/Location:

Calgary, Canada

Industry:

Airports

Partners:

Simplex/Siemens
CH2M Hill

Solution:

Industrial VESDA VLI
VESDA ECO



Tunnel smoke testing

www.xtralis.com

UK and Europe +44 1442 242 330 The Americas +1 800 229 4434

Middle East +962 6 588 5622 Asia +86 21 5240 0077

Australia and New Zealand +61 3 9936 7000

Doc. 33853_02

