

ADDRESSING CITY OF CALGARY ODOUR CONCERNS WITH REAL-TIME SURVEILLANCE SYSTEM

Project Summary

Golder Associates Ltd. (Golder) was retained by the City of Calgary (the City) in the spring of 2014 to help to resolve an ongoing odour issue present in residential communities surrounding the City's Fish Creek Wastewater Treatment Plant (FCWWTP). The City had made previous attempts to understand odours in the neighbouring communities with varying degrees of success over the years. The challenge always remained to pin-point the source of the offending odours. Golder developed and undertook a unique and ongoing air quality monitoring study in partnership with Airdar, an Alberta-based company whose technology has been able to effectively locate, measure and continuously monitor local odours in real-time, and to support a safe livable environment for surrounding communities.

Technical Excellence, Innovation and Advancement of Technology

Airdar is a proprietary, patented system invented and developed in Alberta to locate and quantify important emissions sources of all kinds. Conventional leak detection studies in the oil and gas industry consistently show that the vast majority of what are referred to as fugitive emissions (emissions that are released from an opening other than a defined stack) are attributable to a tiny fraction of the total inventory of components. In the case of fugitive emissions, to which odours are often affiliated, it is usually the case that 99%+ of the emissions are affiliated with considerably less than 1% of the facility infrastructure, the 80:20 rule magnified. Airdar is specifically designed to identify these most elusive, yet often most significant sources.

The system has been designed to use any conventional, off-the-shelf, continuously-monitoring gas analyzer as a sensor. The sensor is coupled to a sampling inlet array to draw air samples from the area of interest, in this case, the entire property of the FCWWTP. The Airdar system can then analyze and process data in near real-time to show the concentrations of the compounds of interest at the sample inlet locations and the location and quantity of emissions from all important sources.

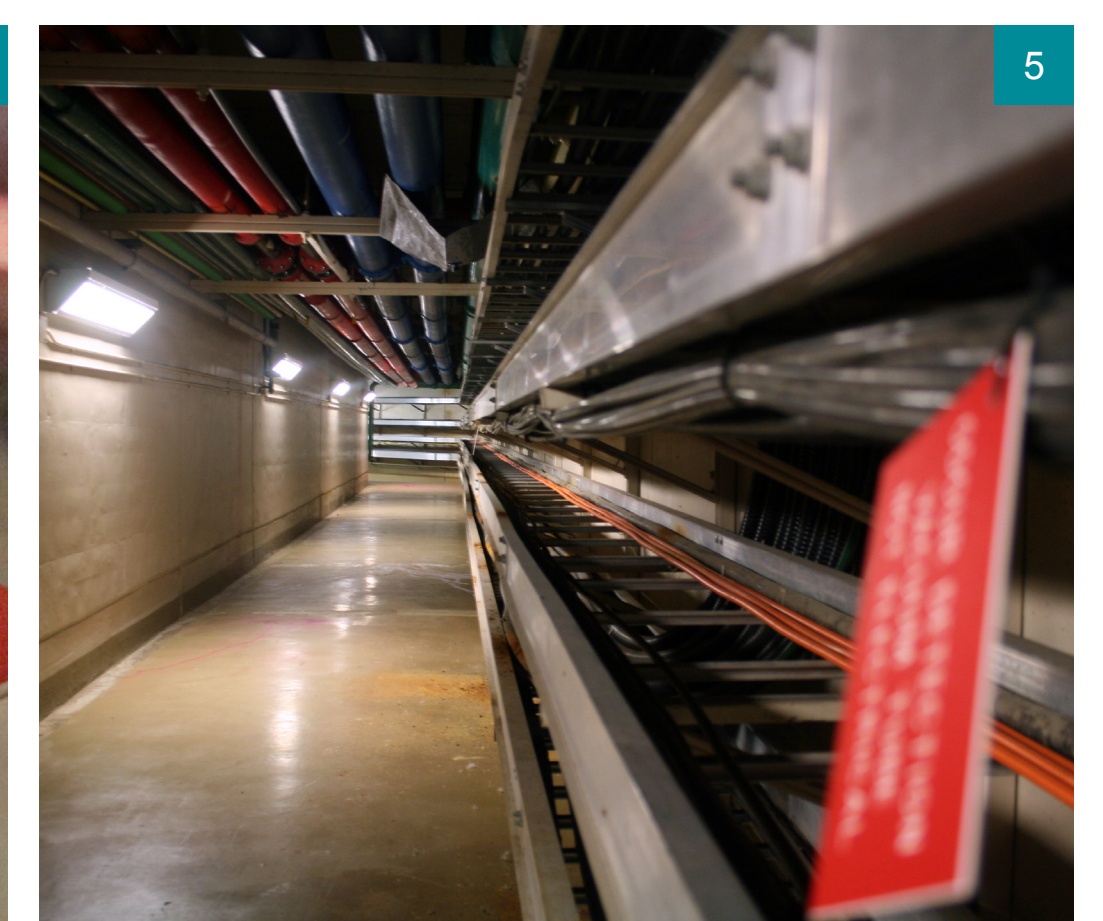
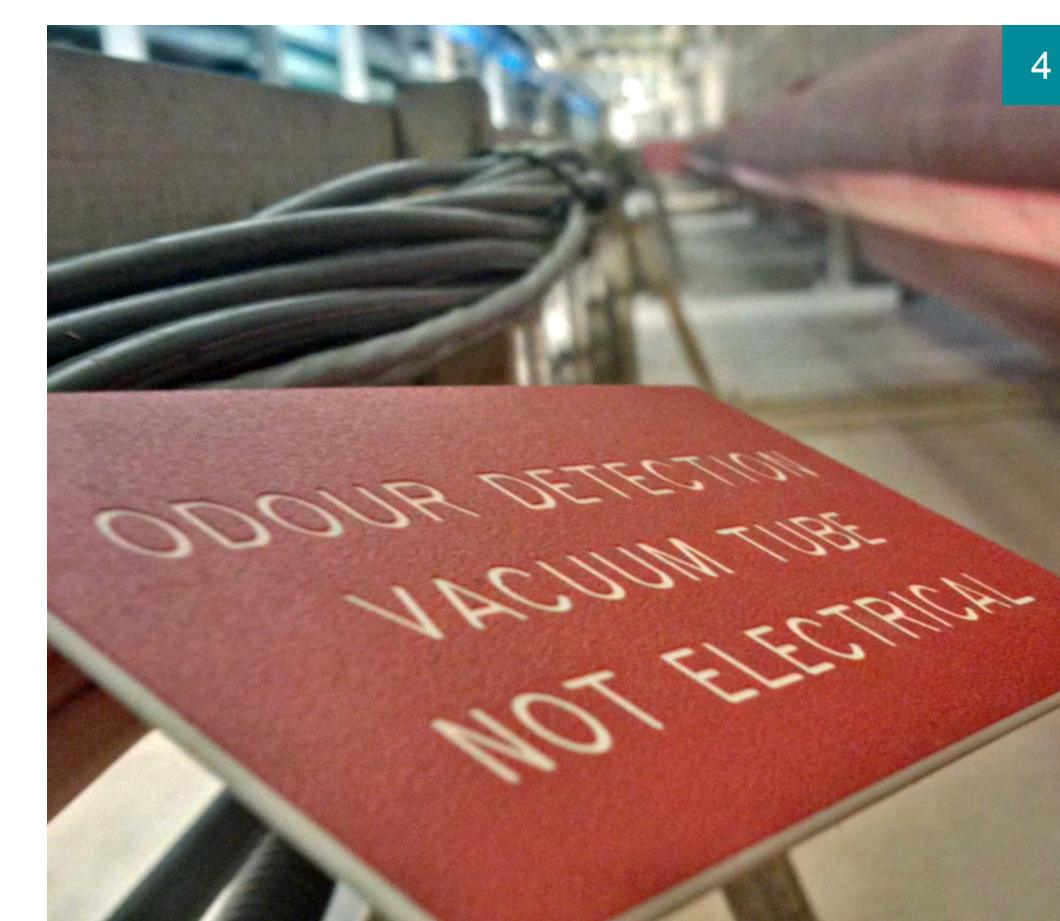
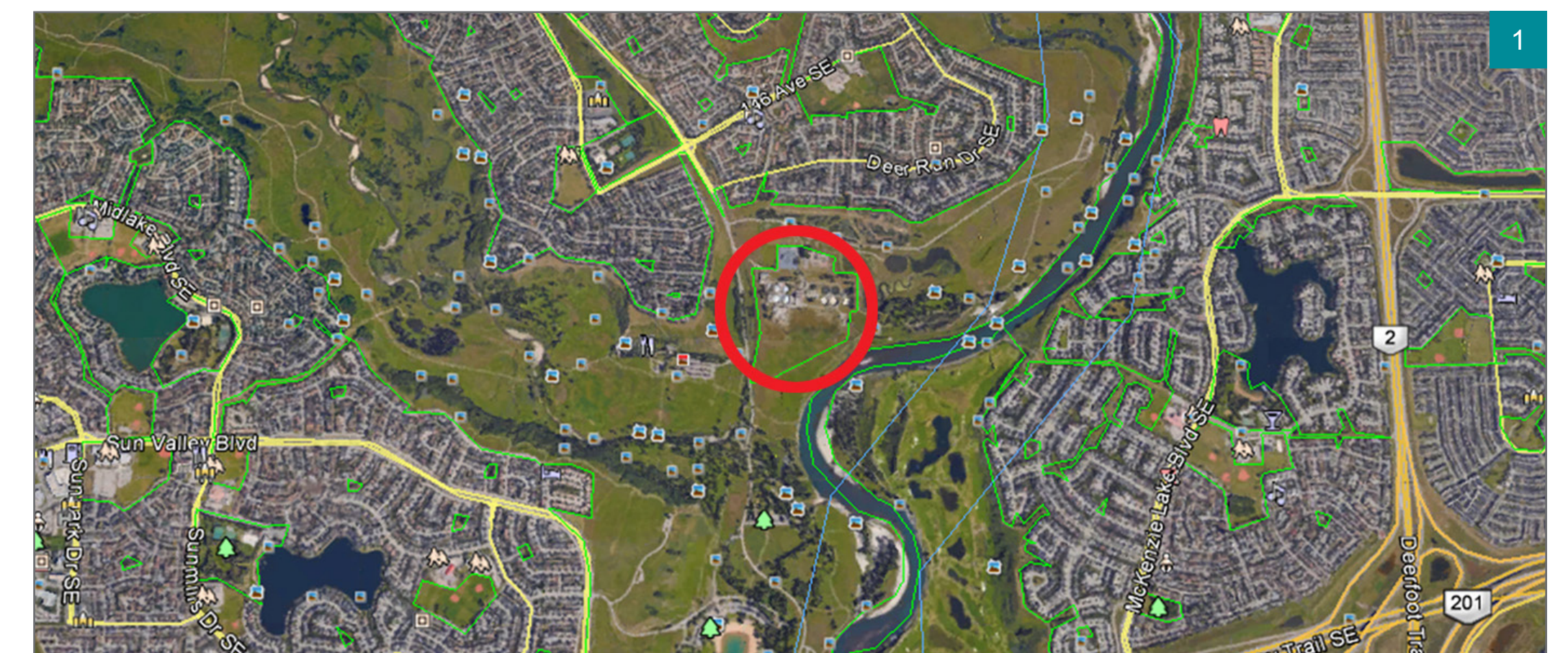
Benefit to Society

The societal benefit of using this unique approach to emissions measurement and management is primarily rooted in the ability of the technology to deliver technically sound data that allows managers to accurately target resources toward real issues. The ultimate result is a more liveable and efficient city, a safer, healthier work-site and a high-level of satisfaction that comes from working efficiently.

Conclusion

The technology used for this project quickly identified the most significant odour source from the FCWWTP which was repaired promptly. Subsequently it has provided valuable information on other odour sources in the area that affect the community. The system continues to monitor conditions in the vicinity of the FCWWTP for known and new odour sources around the clock, unmanned.

This project is a made in Alberta engineering success story that can be applied to help mitigate the same situation in other communities. The application of the technology to other municipalities and other industry sectors and nearly limitless airborne compounds including greenhouse gases is readily achievable. Golder looks forward to many more years of providing this valuable service to the City of Calgary its' citizens, and others.



1. FISH CREEK WASTEWATER TREATMENT PLANT LOCATION. MAP SHOWS THAT THE FISH CREEK PROVINCIAL PARK BOUNDARY BORDERS THE FCWWTP ON THE SOUTH BOUNDARY, THE RESIDENTIAL COMMUNITY OF DEER RUN TO THE NORTH, THE BOW RIVER TO THE EAST AND THE COMMUNITY OF PARKLAND TO THE WEST.
2. AIRDAR SAMPLING INLET
3. AIRDAR CENTRAL MONITORING CABINET
4. AIRDAR SAMPLE TUBING IN A FCWWTP UTILITY TUNNEL
5. AIRDAR SAMPLE TUBING IN A FCWWTP UTILITY TUNNEL
6. TRIANGULATION TO THE ON-SITE ODOUR SOURCE