Odor Call Reduction & Response

PICARRO

APPLICATION BRIEF

One of the most seldom recognized costs associated with leaks in a natural gas distribution system is the cost of responding to gas odor calls from customers and the public. Leaks that have a high emissions (gas flow) rate and are located in populated areas can generate multiple calls annually. This is especially the case if the leaks cannot be found or if they are determined to be non-hazardous and are not repaired on an accelerated schedule. In a study[1] of odor calls in gas distribution systems in the US, it was noted that an average of 64% of all leaks are discovered by the public and that the pipeline operators or contractors discover only an average of 19% of the leaks in the infrastructure through leak survey.

Odor call reduction through Picarro deployment

There are three primary ways in which odor call rates can be reduced using the Picarro system:

1. Using Picarro for compliance leak survey.
2. Using Picarro methane data and analytics to improve pipe replacement prioritization.
3. Using Picarro's emissions quantification analytics to identify high-emitting leaks for prioritized repair.

Each of these methods (and a combination of methods) has been shown to measurably reduce the rate of odor calls. At one US utility, odor calls declined 14% in one year, from 37% of leaks in 2017 to 23% of leaks in 2018, due to Picarro utilization across the network for compliance leak survey. The difference (2090 fewer calls) represents $583k in savings at a cost of $279 per call to respond. This reduction was primarily due to the use of the Picarro system for compliance survey on approximately 75% of the network.

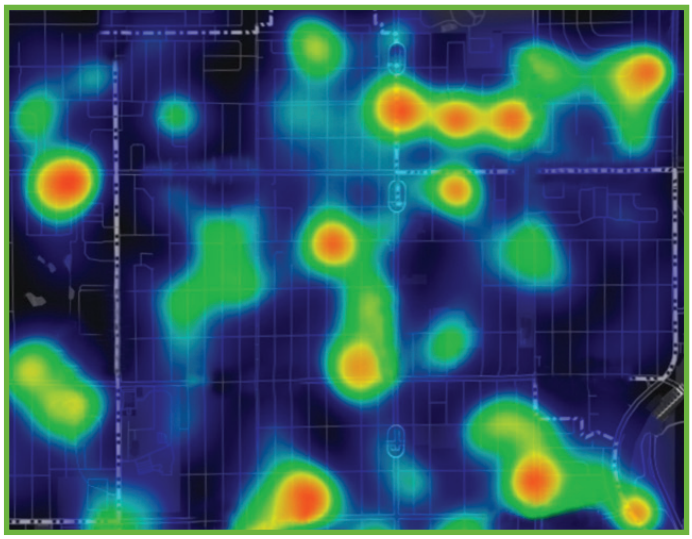

Figure 1. Picarro's Emissions Quantification Analtyics dashboard used for super emitter leak identification and analysis. The dashboard allows gas operators to quickly look at repair scenarios, calculating aggregate emissions reduction benefits of different types, sizes and locations of leaks.

[1] U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration, Final Report No. 12-173, Leak Detection Study – DTPH56-11-D- 000001, David Shaw et al., December 10, 2012.

Odor call response enabled by Picarro

Picarro's visualization tools are routinely used by utilities to help find leaks from odor calls where no leak could be found by traditional equipment. The Picarro system has proven to be highly successful when assisting in cases where there are repeated odor calls (or wide-area odor calls with multiple calls in the same place and time) and where traditional methods can neither locate a leak nor rule out natural gas as the cause of the odor calls. In cases like this, the Picarro system is driven around the area, collecting methane data. Since the system uses ethane source discrimination, it can rule out non-natural gas odors when that is the cause. Using Picarro's visualization tools, the system can also help pinpoint the actual point of leakage in cases where a gas leak is migrating through soil, substructures or sewers.

Picarro has been used in following up on odor calls where no leak was found. One US utility responds to 81k odor calls yearly. In 34% of cases, technicians come back reporting no gas found. When they send a Picarro system to a no-gas-found case, it finds a gas leak 79% of the time. Of those cases, 20% are hazardous leaks which means: 81k x 34% x 79% x 20% = 4,351 hazardous leaks can be found with Picarro that would not otherwise be found.

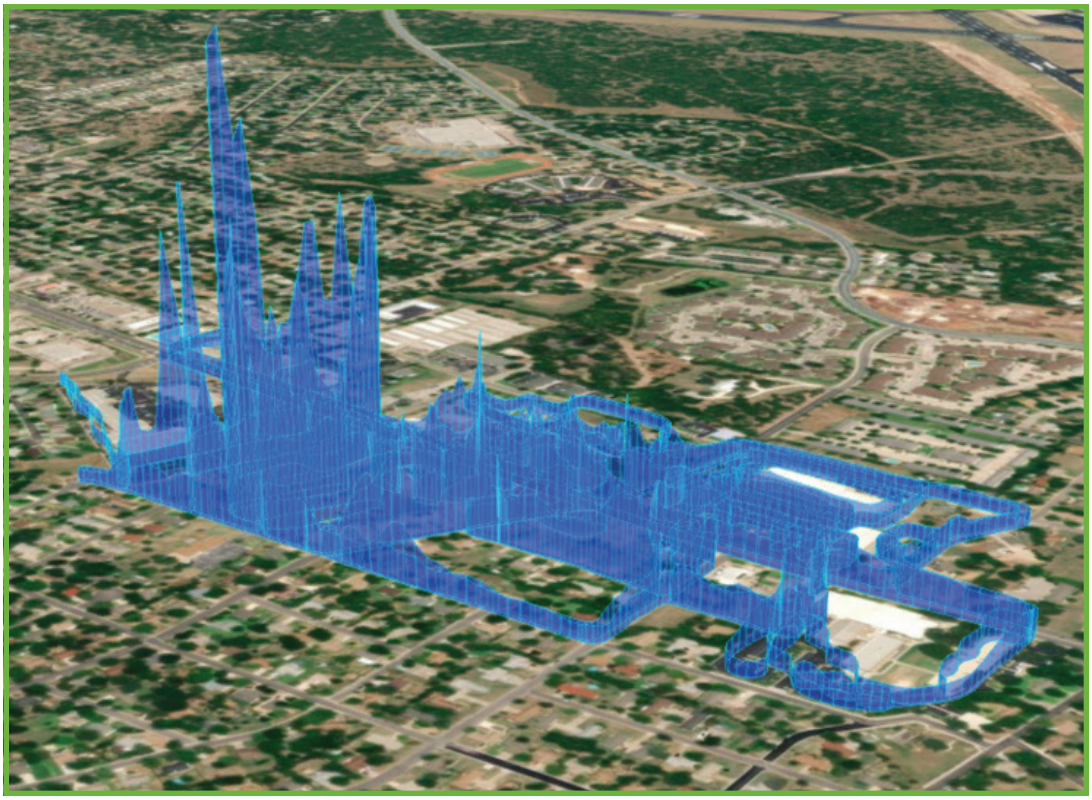

Figure 2. Example of using the Picarro system to assess an area experiencing a high number of odor calls due to a large methane plume from a gas leak.

Utilities using Picarro are taking advantage of the multiple ways in which it can help reduce and better respond to odor calls. Even without a targeted campaign to reduce odor calls, the Picarro system's effectiveness in finding leaks carries a concomitant value of odor call reduction through its routine use in a natural gas infrastructure.

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