

## APPLICATION BRIEF

### **Regulatory compliance leak survey**

The Picarro system is most commonly used for compliance leak survey of entire maps and areas due for routine survey. Multiple drives are conducted and the resulting data is combined by Picarro's analytics and report generation engine which produces maps of leak indications requiring follow-up with traditional handheld equipment.

### **Support distribution integrity management programs (DIMP) initiatives and analysis for high-risk pipe, business districts, annual survey, risk-based assessment surveys and prioritization of main replacement**

A number of utilities have used Picarro for risk-based survey including annual DIMP surveys of small areas of high-risk pipe and business districts. Others use the system to assess larger areas, combining the Picarro survey data with other risk information to help prioritize construction from a risk-reduction perspective.

### **Leak survey forecasting and planning**

Picarro's analytics enable methane data taken with the Picarro system over an infrastructure to be used to forecast labor and construction costs for subsequent compliance survey cycles, reducing unplanned work and keeping labor demands and budgets predictable over the course of the annual cycle.

### **Emissions Reduction**

Picarro's solution enables emissions data to be taken rapidly and at scale to quantify emissions over large areas, pipe segments, or to identify the highest-emitting leaks so they can be targeted for prioritized replacement for emissions, safety (migration) or odor-call related reasons.

### **Locating hard-to-find leaks**

The Picarro system is frequently used to locate leaks that are unable to be found by traditional survey equipment. Such leaks can have extended migration patterns. By surveying an entire neighborhood with Picarro, a holistic view of all the sources of methane in the area is quickly provided and enables survey technicians to hone in on the exact location of the actual leak.

### **Investigation of odor complaints**

The Picarro system can be used as follow-up to an odor call when the initial investigation using traditional equipment is unable to identify the source of gas. It is quickly able to determine whether or not there is a gas leak in the area of the reported odor, and if so, is able to help locate the leak. If a source of methane is found but it cannot be tied to an actual leak, the system's source discrimination capabilities can be employed to determine if the methane is from natural gas or if it is non-pipeline methane such as sewer or landfill gas.

### **Rapid, emergency survey, post-disaster evaluation and system re-pressurization after such events**

The ability of the Picarro system to survey a large area quickly and quantify the relative hazard of leak indications has made the system popular with multiple gas operators for emergency leak survey response in communities after disasters. It has been used after earthquakes, tornadoes, over-pressurization events and loss of odorant events. Utilities have also used the system in similar situations after wildfires, hurricanes and floods.

### **Frost survey patrols and high-frequency survey**

Unlike traditional survey equipment, the Picarro system excels at surveying in rain and snow as its sensitivity allows leak measurement through both snow and ice cover. These attributes, paired with rapid survey capability make it an ideal tool for frequent wintertime survey of high-risk pipe. Since cast iron main breaks due to frost heave are a significant concern, particularly in the eastern United States, the system is ideally suited quickly identifying these leaks, as well as monitoring existing leaks for signs that they may be growing in size.

### **Rapid survey of high-consequence areas prior to public events**

The system is ideally suited for targeted, rapid surveys before high-profile public gatherings including parades, official visits, concerts and sporting events. Picarro has been used to quickly perform special leak surveys before multiple Super Bowls for example.

### **Real-time source attribution and on-site chemical analysis**

When an identified source of methane cannot be directly linked to a utility asset, the chemical analysis capability of the Picarro system can be used on-site to quickly measure a sample of the methane plume to determine if it is from a natural gas leak or from another source of methane such as a sewer or landfill.

### **Post-construction quality control– rapid survey of new or modern infrastructure**

Multiple utilities have used Picarro to quickly evaluate construction practices, both to assess the quality of newly installed infrastructure as well as to determine if third-party construction may have caused damage to their existing infrastructure. Since the system has much higher sensitivity than traditional equipment, it is an ideal tool for quality control applications.

### **Due-diligence for asset acquisition**

Picarro can quickly survey a large area to provide an overall sense of the integrity of assets and rough estimates of leak indications and emissions per mile of pipeline. This type of large-area asset assessment has been used to gain an understanding of the quality of a distribution system that is being considered for acquisition by a larger gas utility.

### **Identification of large lost and unaccounted for gas sources (LUG)**

The Picarro system can quantify methane emissions of individual leaks or aggregate emissions over pipe sections or large areas and so can be used for rapidly triaging an area and identifying potential locations in the system (valves, city gates, regulator stations) for potential large sources of lost and unaccounted for gas.

### **Rapid assessment surveying before construction work, street paving and building demolition**

The Picarro system is ideal for surveying both before and after building demolition near gas assets. The system conducts surveys rapidly and Picarro's digital geo-spatial maps of leak indication locations (such as from existing Grade-3 leaks) can be compared for pre- and post-demolition surveys to identify new leaks potentially caused by the demolition. Similarly, rapid survey can be conducted before roadwork and other construction.

### **Auditing walking survey**

From the over 50 double-blind field trials conducted with over 20 utilities worldwide, it has been shown to routinely be capable of detecting, on average, 91% hazardous leaks in an area. For comparison, traditional survey detects only 32% of the same population of leaks in the same area. Since it has a much higher leak find rate than traditional walking survey, Picarro is routinely used to audit traditional leak survey at several utilities.