

## APPLICATION BRIEF

Picarro's asset management solution increases the efficiency and quality of compliance leak survey as compared to traditional survey methods. Natural gas operators around the world use Picarro's asset management solution for advanced mobile compliance leak survey. The Picarro solution significantly increases the number of hazardous leaks that can be found and removed from a gas infrastructure as compared to traditional survey and the Picarro process is also faster and less costly than traditional survey.

Picarro's mobile natural gas leak detection system is driven through a natural gas infrastructure gathering methane, wind, atmospheric and GPS data which is later processed by Picarro's algorithms to detect and localize leaks.

In a typical implementation using Picarro for compliance leak survey, a map due for survey is driven on multiple nights according to the Picarro driving protocol: drives occur at night rather than during the day due to better atmospheric conditions at nighttime, and the absence of traffic, and they include multiple (typically six) passes on each street within a natural gas infrastructure on at least two different nights to maximize wind direction variability. After the mobile data collection is complete, the data is processed using Picarro's cloud-based analytics and report generation engine. These patented algorithms combine the data from multiple drives to produce a map-based output, showing all the Leak Indication Search Area (LISA™) markers. The system also outputs Picarro's Field of View (FOV™) Coverage Area which shows what areas have been effectively covered by Picarro. Any gaps in this coverage are also shown, along with the vehicle path and methane source attribution for each leak indication.

### Picarro's Advanced Leak Detection (ALD) Technique

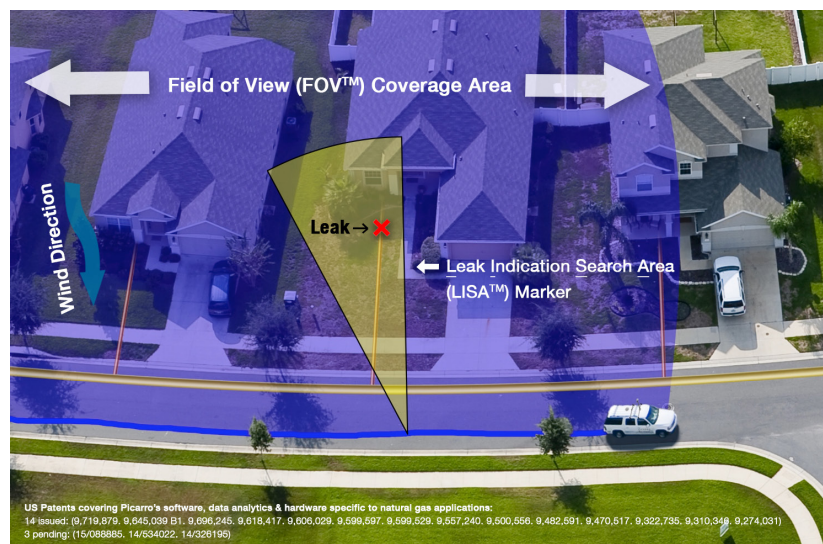


Figure 1. Picarro Advanced Leak Survey Technique

With this data in hand, often via Picarro's mobile investigation application, leak survey technicians then follow a standard protocol for searching the each LISA. This involves searching all gas assets and nearby substructures within the LISA using traditional, hand-held leak survey equipment. Any gaps in FOV coverage are then also surveyed by traditional means, after which the survey area will be 100% surveyed from a compliance perspective. Any gas assets within Picarro's FOV coverage area that are not covered by a LISA do not need to be searched by hand as these areas were effectively surveyed by Picarro. Maps showing FOV coverage area are used by utilities in compliance documentation as proof that assets within the FOV coverage area have been surveyed. Using Picarro's mobile application, gas utility field personnel are guided to areas requiring follow-up investigations for leak indications or gap survey. Details of any leaks found can be recorded including leak GPS position, photos and any other relevant information.



The large amounts of data gathered during Picarro compliance survey can be used for other purposes within a utility organization including DIMP/risk initiatives, emissions reduction efforts and leak survey forecasting for future compliance cycles. Picarro has developed a number of analytics modules and dashboards for these specific applications.



**Figure 2.** Example of compliance survey report output showing blue vehicle breadcrumb, magenta GIS assets (gas mains/services), blue shaded FOV coverage area, and assets associated with a leak indication highlighted in yellow and assets associated with a gap in FOV coverage highlighted in red.