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Synodon and CLS Partner in Remote Sensing of Natural Gas Leaks

Developing highly efficient detection systems for natural gas pipeline leaks is not just cost effective, it also saves lives. The CLS has been working closely with Synodon Inc. to create new, more effective ways of monitoring natural gas pipelines.

The traditional method of detecting a leak in natural gas pipelines is to have workers walk the length of the line with hand-held sensors. This method is both slow and inefficient, as it cannot detect leaks until they are quite large.

Doug Miller, Chief Technology Officer at Synodon Inc., is developing an airborne natural gas pipeline leak detection system called realSens™ that will be the most advanced in the world. Synodon adapted an existing methane monitoring technology, known as Gas Filter Correlation Radiometry (GFCR) to detect upwellings of natural gas in the lower atmosphere.

The new technology, known as Simultaneous View Correlation Radiometry (SVCR) is able to detect specific properties of natural gas, ensuring that other emissions that occur naturally do not affect the sensors.

*Doug Miller,
Chief Technology Officer,
Synodon Inc.*

Besides being more accurate in its detection, realSens™ is far more efficient. It has been designed as an infrared optical instrument that is attached to a helicopter. The helicopter can fly over 100 km of pipeline in an hour to detect leaks and identify defects in the pipeline far earlier than with traditional hand-held detectors.

Early detection is critical to the safety of pipeline workers and the public. Miller explains, "In high-pressure gas pipelines, which bring the gas from the fields to the distribution points, a small leak can become a large leak in a hurry. Occasionally, there are catastrophic accidents that result in major property damage and loss of life."

The CLS is being used to improve the quality of realSens™. The synchrotron's far-infrared beamline conducts spectroscopic analyses of gases, the results of which go into refining Synodon's technology. These methods of analysis are unique to the CLS.

"Synodon is very pleased to be able to utilize the

leading edge CLS facility," says Miller. "The measurements that we have made could only be done at the CLS and have been very useful in helping us optimize the performance of our instrument."

There is huge potential for the technology used in realSens™ to extend to other applications. It could be used in the remote sensing of other gases, and as part of other airborne or satellite-based remote sensing solutions. The possibilities are endless!

