New, Laser-Based Natural Gas Moisture Analyzer Provides 'Maintenance-Free' Accuracy at Williston Basin Interstate Pipeline

Although somewhat more expensive than traditional sensors, new laser-based natural gas analyzer technology saves on operational costs to maintain and replace erratically performing probes.

(PRWEB) May 9, 2006 -- Looking at the new moisture analyzer technology, the gas measurement engineers at Williston Basin Interstate Pipeline (WBIP) could see the potential savings in replacing their aluminum oxide probes with a new, laser-based type of moisture analyzer. “So, we ran the numbers, and it appeared that we could save on the costs of refurbishing or replacing probes, as well as the considerable labor on the part of field technicians,” says measurement engineer Nate Hagerott.

WBIP provides natural gas transportation and underground storage to customers throughout the upper Midwest. As a subsidiary of MDU Resources Group, Inc., the company provides services to utilities, natural gas production companies, energy marketing firms and large industrial consumers.

Hagerott, who works at WBIP’s Montana operations, says they purchased a SpectraSensors gas analyzer in 2005 to find out if the new technology could provide the consistent accuracy that would make it trustworthy in the field.

“For the first few months we compared the laser-based natural gas analyzer with the Bureau of Mines chilled mirror hygrometer,” he says. “The readings were consistently within 1/10 pound. We have since found it unnecessary to compare it as often as we did at first, because we know that we can trust the readings.”

Accurate and trustworthy performance is essential to a business whose flow of pipeline-quality gas depends on it. For this reason, engineers often wait for years to be sure that new natural gas sensor technologies have been debugged before even evaluating them.

But Hagerott saw a real need for the SpectraSensors technology, enough to easily justify the cost and evaluation effort.

“We install moisture analyzers downstream of processing, including dehydration,” he explains. “When glycol carryover coats our natural gas sensor probes in addition to other contaminates, which happens over time, they tend to start giving erratic readings. Our field technicians know when that happens, so they have to replace the probe. The technician then sends the probe to the shop to be refurbished, or replaced if necessary. And if we don’t have a replacement probe available, then a technician has to go out and take readings with a portable analyzer. All of that can get pretty expensive.”

Using a “tunable-diode” laser-based technology, the SpectraSensors natural gas analyzer accurately measures and monitors moisture content by precisely measuring the absorbance of light by moisture molecules, thereby measuring the exact amount of water (or carbon dioxide). There are no chemical conversions involved, and no natural gas sensor contact with the sample gas. This eliminates “coating” problems, erratic measurements, and exceeded tariffs.

Hagerott says the new moisture analyzer has proved the technology so well that his WBIP operation installed a second unit earlier this year.

Other pipeline operators are using the new moisture analyzer technology, too. Their goals vary from saving on maintenance and labor costs to ensuring that moisture does not cause customer complaints or dangerous pipeline corrosion. The new laser-based technology precludes such problems through parts-per billion accuracy and through measurement intervals as frequent as every second, as opposed to the 10-12 minutes between readings typical of contaminant-vulnerable quartz crystal and electrochemical sensors.

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