Monitoring Methane (CH4) andOther GasesatNatural Gas Production Wells by Conspec Controls

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Energy production is once again a prominent industry in the nation during a time when fuel costs continue to soar. Everyday millions of companies consume large amounts of energy to produce their goods and services. With energy prices still increasing, other resources are quickly being sought after. Fortunately, in the past decade much progress has been made in natural gas industry. Many natural gas shale reserves have been discovered all over the United States, including Montana, North Dakota, Ohio and Pennsylvania.

These natural gas reserves have been projected to supply the US with abundant energy for hundreds of years. Natural gas is one of most efficient and clean burning hydrocarbons on the market. It emits approximately half the carbon dioxide (CO2) than that emitted by coal burning, as well as lower levels of other gas compounds. Natural gas is quite similar to other resources being there is inherent risk during the acquisition and transportation process. The most dangerous part of natural gas composition is the methane, seeing it is extremely flammable. While limited human exposure is not harmful, concentrated methane poses a great threat of combustion.

How it works: The gas wells have pumps and compressor stations that refrigerate and pressurize the liquefied natural gas (LNG) transporting it through large metal pipes to a processing plant. This combination of mechanical activity and other elements during the transportation and processing plant can lead to leaks around flanges and seals. At the processing plant, the natural gas undergoes procedures to remove almost all materials other than methane. To increase safety during this operation;company managers are using methane gas detection systems, to constantly monitor the equipment. Advanced gas detection systems are now utilizing twofold security, catalytic beads and infrared sensors. Catalytic beads are more resilient to airborne contaminants, humidity, condensation and pressure changes, but periodically require recalibration to the sensor. The sensor simply monitors the lower explosive limit(LEL) of the designated gas, which is the concentration needed for the gas to ignite. Infrared sensors are immune to chemical interference and donâ€™t need oxygen to function.

Managers of the natural gas well sites can easily integrate the drilling and detection equipment into existing programmable logic control (PLC), distributed control system(DCS) or energy management system(EMS). Should a sufficient leak be detected, the system will automatically enact safety procedures programed into the system, i.e. shut off valves to prevent an explosion or turn on ventilation fans. Continuously monitoring methane level helps avoid unnecessary damage to on-site personnel, expensive equipment and property.

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