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The Key to Integrity and Safety of Natural Gas Infrastructure is Spelled PE

A deliberation continues throughout the natural gas industry regarding the review of all engineering and design plans related to natural gas by a professional engineer — PE. Some believe this step of certification and review is essential to protect the public, while others believe there are adequate state and federal regulations in place, and this is an unnecessary burden for gas utilities. We believe PEs offer technical expertise that can guide utilities to safe and reliable designs that most dependably distribute natural gas and mitigate future hazards.

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On September 13, 2018, excessive pressure in natural gas lines caused a series of explosions and fires in 40 homes in Massachusetts. The cost of this tragic incident is estimated to be \$1 billion, with damage to 131 structures, nearly 30 injuries, a fatality, and the evacuation of 30,000 people. Following this incident, Massachusetts took an important step toward working to reduce risk to the public with a new law requiring a professional engineer review and approve plans for natural gas pipeline work. The National Transportation Safety Board's report on this incident endorsed the idea of PE certification as a necessary step for the protection of the public.

One important consideration that was noted as part of the review of the Massachusetts incident was that states in the Northeast have a higher share of leak-prone pipe (cast iron and unprotected steel) in the make-up of their gas distribution systems when compared to their overall share of gas distribution pipe in the US. The Northeast was settled earlier and cast iron and bare steel pipe were the materials of choice at the time of installation. Due to the aging infrastructure of gas distribution systems in the Northeast, there is a higher risk of failure and potential threat to the communities in this region.

Today, several states require PE certification of gas plans. The majority do not, though more state legislatures and public service commissions are considering imposing this requirement.

Professional engineers, and particularly those focused on and experienced in natural gas infrastructure, can help gas utilities navigate the process to bring gas infrastructure projects into regulatory compliance and enhance internal quality control processes. They can certify the integrity and safety of natural gas pipelines and structures, ensure compliance to standards and regulations, and identify those situations where hazards may be likely to occur. Professional engineers may spot errors, oversights, abnormal

deterioration, or environmental factors that could be avoided or diminished. Natural gas distribution systems are generally reliable, but leaks occur, and environmental factors can play a role in deterioration and reliability. As utilities continue to invest in natural gas infrastructure, including upgrading their gas systems, adding PE certification to the plan is recommended. These utilities face persistent pressure to provide the highest level of service and reliability and also the highest level of protection for the communities they serve. Having a professional, experienced, and trained third-party review gas infrastructure plans will enhance reliability, compliance, quality assurance, and, most important, safety.

About the Author: Jeff O'Donnell, PE, is a Senior Project Manager and Business Practice Leader for Gas Engineering at CHA Consulting, Inc. (CHA). Jeff has more than 25 years of experience in civil engineering and project management. His expertise encompasses the spectrum of gas utility projects, including cost estimating, pipeline design, horizontal directional drilling design, route selection, plan generation, land use calculation, construction permitting, and construction inspection. You can reach Jeff at jodonnell@chacompanies.com.



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