Northeast
GAS ASSOCIATION

November 4, 2019

Mark D. Marini, Secretary
MA Department of Public Utilities
One South Station, 5th Floor
Boston, MA 02110

RE: Comments to D. P.U. 19-34-A, Inquiry by the Department of Public Utilities, Use of Professional Engineers by Natural Gas Companies

Dear Secretary Marini:

On December 31, 2018, Governor Baker signed into law, "An Act Ensuring the Safety and Soundness of the Commonwealth's Natural Gas Infrastructure." This regulation requires a professional engineer stamp on engineering plans or specifications for engineering work that could pose a material risk to public safety. The regulation also authorized the Department of Public Utilities ("Department") to promulgate regulations, as necessary, to implement the new regulation.

On March 18, 2019, the Department issued an Inquiry seeking initial written comments on the issues that the professional engineer regulations should address. Reply comments were submitted by the Northeast Gas Association[1] ("NGA") on May 2, 2019 in response to the initial comments filed.

On October 11, 2019, the Department issued an Inquiry seeking written comments on a "Straw Proposal." The Department defines the purpose of the Straw Proposal to "establish specific

[1] NGA is a regional trade association that focuses on education and training, technology research and development, operations, planning, and increasing public awareness of natural gas in the Northeast U.S. NGA represents natural gas distribution companies, transmission companies, liquefied natural gas suppliers and associate member companies. Its member companies provide natural gas service to over 13 million customers in 9 states (CT, ME, MA, NH, NJ, NY, PA, RI, VT). Massachusetts members include: Bay State Gas Company (d/b/a Columbia Gas of Massachusetts); Berkshire Gas Company; Blackstone Gas Company; NSTAR Gas Company (d/b/a Eversource Energy); Holyoke Gas and Electric Department; Liberty Utilities; Middleborough Gas and Electric Department; Boston Gas Company and Colonial Gas Company (d/b/a National Grid); Unitil; Wakefield Municipal Gas and Light Department; and Westfield Gas and Electric Light Department.

criteria for the use of professional engineers in relation to natural gas engineering plans, work, or services that could pose a material risk to public safety. In particular, the Straw Proposal delineates how natural gas companies are to use professional engineers on complex projects and defines the types of complex projects that warrant the use of professional engineers."

NGA and the Commonwealth of Massachusetts gas operators appreciate the opportunity to offer comments regarding the PE Straw Proposal. We are committed to working with the Department to identify and facilitate the implementation of engineering processes that will result in the most desirable public safety outcomes. NGA is requesting that the next step in this important process be a face-to-face technical session(s) to clarify engineering work considered "Complex Projects" and discuss practical implications and challenges of several sections in the PE Straw Proposal. NGA respectfully submits the following comments on behalf of its Commonwealth of Massachusetts members regarding D.P.U. 19-43-A.

COMMENTS:

Prior to the amendment to G.L. c. 164, gas companies in the Commonwealth of Massachusetts employed and/or contracted with professional engineers that perform design work on certain "Complex Projects." For example, Complex Projects B in the Straw Proposal is typically performed by professional engineers with significant experience in natural gas distribution and transmission systems. NGA agrees that all engineering designs should undergo a rigorous, end-to-end design through constructability review process, commensurate with material risk to public safety. That said, NGA believes it is critical that technical session(s) be held for the Department and utilities to clarify the definition of what constitutes non-standard complex engineering designs and work packages.

Determining "Complex Projects" based on potential operational and public safety risk is key to extracting the greatest degree of public safety value from the Straw Proposal. The proposal, as

currently written, implies the vast majority of day-to-day project work that requires a job-specific design plan poses an equivalent material risk to public safety. The majority of natural gas infrastructure construction activities follow prescriptive, asset specific, regulatory compliant company standards and procedures. The application of these company approved design and construction standards ensures consistent use of well-established, industry proven, and effective design applications which have been vetted and approved for use through a formal review and approval process. Work which utilizes company approved design standards that have gone through a rigorous company specific review process should not be considered "complex" for the purposes outlined in D.P.U. 19-34-A as it does not present a material risk to public safety. The development of a listing of "complex projects" requiring design and approval by a professional engineer as part of the design review process should be developed based on the level of risk to public safety associated with that activity.

As such, NGA has concerns regarding the engineering design work defined in the Straw Proposal, that falls within the definition of a "complex project" requiring a professional engineer review and approval. Many of NGA's concerns can likely be addressed by clarifications, rather than wholesale revisions. A technical session would offer an opportunity to seek and obtain such clarifications. Below are several examples of "Complex Projects" as defined in the Straw Proposal that require further clarification:

- **Complex Project D** ("Installation work on distribution mains that involves two or more tie-ins; requires a bypass; or changes the system operating pressure") has the unintended consequences of including the majority of day-to-day distribution piping system work. For example, each new segment of main will need to be tied into the system at a minimum of *two locations* ("two tie-ins") and as a result, the definition needs to consider *tie-ins by location*. Many times, routine day-to-day

gas construction and maintenance activities are completed by performing tie-ins at two points such as an off-set to repair a leak or squeeze-off direct tie-in scenarios for new mainline extensions from two ends of a main within an existing system. The current definition will result in many simple, day-to-day projects undergoing an unnecessary PE review. Similar clarification is needed regarding variations in operating pressures and non-complex simple by-passes to ensure continuous supply downstream of a pipeline tie-ins or repairs.

- **Complex Project F** is defined in the Straw Proposal as "all distribution main replacement projects pursuant to G.L. c. 164, § 145." This definition references tracker (GSEP) projects. Qualification for GSEP does not imply complexity as some are non-complex. Including this work, as written, implies virtually all gas construction work performed, including small retirement projects and other day-to-day applications of non-complex standard design work will require a professional engineer review and stamp. In addition, we note that the definition of Complex Project F is a broad category of work which conflicts with the intended risk-based rationale found in the definition of Complex Project D.
- **Complex Project J** ("Installation or abandonment of service lines connecting to a distribution main with an MAOP exceeding 60 p.s.i.g.") Regardless of pressure, service line replacements are routine in nature when not interrupting the flow of gas on the adjacent mainline. As written, this broad definition will require many gas utilities to use a professional engineer for all standard design, non-complex, day-to-day gas service work in their distribution system as the predominant system MAOP for many operators is between 60 and 99 p.s.i.g. NGA understands that the DPU would like to include high pressure systems but NGA believes the demarcation point should occur at 100 p.s.i.g, or greater. The inherent risk associated with the abandonment of a service line on a 99 psig system does not warrant additional scrutiny than a service line abandonment on a 60 psig system.

- **Complex Project M** ("Installation of large volume meter sets if the inlet line to the meter is 4" or greater in nominal diameter"). This requirement could have significant impacts on commercial/industrial installations while providing limited, if any, public safety value. Meter set installations typically utilize approved, standard designs that include specification for materials of construction, installation requirements (including meter protection) and use of specific metering equipment. While these designs are standard, application of the design must consider site specific conditions such as customer load and physical site conditions. Simply selecting pipe diameter as the presumed risk driver without any assessment of potential operational risk associated with the installation would not add safety value.

NGA believes the abovementioned examples help highlight the need for technical sessions to truly gauge the impact of the Straw Proposal's Complex Project definition on stakeholders and the potential unintended consequences and complexities of meeting the Department's goal of removing aging pipe from the streets of the Commonwealth of Massachusetts. The technical sessions would result in increased clarity and precision in applying the definition of a complex project rather than wholesale revisions of the Straw Proposal.

In addition to the aforementioned practical examples, NGA has broader areas of concern including unintended overall safety consequences associated with timing and scheduling of infrastructure replacement programs, limited availability of professional engineers experienced in natural gas systems, and the transformative impact of Pipeline Safety Management Systems (PSMS) being implemented in the Commonwealth under the Governor's directive of last fall.

Unintended Safety Consequences of Pipe Replacement Project Delays

Since January 2019, when the initial professional engineer requirements were established by the Department, impacts have resulted from projects that are part of the work under G.L. c. 164, § 145. In NGA's opinion, the application of approved standard designs as part of a site-specific work package does not pose a material risk to public safety and do not warrant the design approval of a professional engineer. The requirement to have these designs and work packages approved by a professional engineer have deterred the overall engineering and construction work package approval process. These delays have resulted in a reduction of leak-prone pipe replacement work completed. Incorporating the Straw Proposal Complex Project work, as defined in D/P.U. 19-34-A will result in greater delays in standard day-to-day activities associated with total system replacement work. Instead of reducing the years needed to completely replace the Commonwealth's older infrastructure, the replacement timespan will be further extended thereby increasing overall risk. In addition, with less replacement work being performed than previously planned, this negatively impacts jobs in the Commonwealth and emission reductions.

Limited Availability of Licensed Professional Engineers with Gas Engineering Experience

To perform the work detailed in the Straw Proposal, all gas utilities will be required to contract with outside engineering firms for professional engineers who have sufficient knowledge in the design and operations of a gas distribution and transmission system (not simply a licensed professional engineer). Hiring a licensed professional engineer without sufficient knowledge in the design and operations of a distribution and transmission system, as well as company specific assets and operations, could pose an unintended safety risk. We will discuss this point further below. Since these resources are limited, and many are not employees of gas utilities, work with other stakeholders will be impacted.

Municipalities will be directly impacted with significant budgetary and scheduling implications. Municipalities plan their street restoration projects the year prior, but history shows that many of these project priorities are altered year-after-year for various reasons.

Utilities have established relationships with municipalities to quickly react to changing street restoration priorities and ensure that gas infrastructure is replaced prior to the street restoration. The professional engineer requirements, as defined in the Straw Proposal, will significantly impact municipality work. Much of this work can be completed safely and efficiently through the application of standard designs coupled with a robust design review process. Will municipalities wait for gas utilities to complete their engineering designs? Will they pave and enforce their existing road opening moratoriums of five years, delaying gas infrastructure replacement and the connection of new gas customers? Will developers in growing communities, like the City of Boston, not receive gas service or see significant delays due to requirements in the Straw Proposal? These concerns must be considered and discussed in detail to balance the risk of a project with the appropriate level of design review. Technical sessions would offer an opportunity for this discussion.

As stated above, NGA is concerned about the availability of credentialed professional engineers with sufficient knowledge in the design and operations of gas distribution and transmission systems and utility specific construction practices. According to the Commonwealth of Massachusetts Board of Registration of Professional Engineers and Land Surveyors website, "Board members are members of the National Council of Examiners for Engineering and Surveying (NCEES). This Council prepares national testing for the regulated professions." In 2013, NCEES removed from its Model Law the requirement that candidates earn four years of experience before taking the exam.

In a July 2018 article from the National Society of Professional Engineers (NSPE) titled, **When Can I Take the PE Exam? States Allowing Examination Before Experience**, NSPE noted that as

of July 2018 there were already 15 states that allow candidates to take the test prior to demonstrating practical engineering competencies provided by attaining the four years of work experience. Why is this important? It shows that the testing for a professional engineer license is not specific to an engineer working in the natural gas distribution and transmission industry. It also does not consider practical knowledge requirements of company specific assets and associated operations. The testing component of the licensure process is specific to what an engineering student learned at their engineering accredited university. The four years of experience after graduating from an engineering accredited university is key to this discussion. For many engineering professions, including utility work, gaining professional engineering status was not required. Therefore, the available pool of professional engineers with sufficient knowledge in natural gas distribution and transmission design and operations is very limited. The current pool of qualified engineers will not be sufficient to handle the workload defined in the PE Straw Proposal. This could lead to work delays or stoppages. Such delays pose their own risks to safety and reliability. This further demonstrates the importance of holding a technical session(s) to clarify standard non-complex from complex projects.

Section 1.02 GENERAL, (1) Purpose and Scope, of the PE Straw Proposal states, "The purpose of these Professional Engineer Regulations is to promote the safety of natural gas engineering work or services through the use of professional engineers, with sufficient knowledge of natural gas facilities, to provide direction to gas companies for certain engineering work or services." NGA agrees with this statement, especially the reference to sufficient knowledge of natural gas facilities. In addition, we agree with the reference to "certain" engineering work, not the majority of engineering work as implied by the proposed definition of Complex Projects.

Consideration of Implementation of API RP 1173 Pipeline Safety Management Systems

The role of Pipeline Safety Management System (PSMS) implementation is not being fully considered in the Straw Proposal. On November 21, 2018, the Baker-Polito Administration issued a press release stating, "As part of efforts to ensure the safety of the Commonwealth's natural gas distribution system, the Baker-Polito Administration today announced that the Northeast Gas Association (NGA) has committed to adopting a Pipeline Safety Management System (PSMS), the **American Petroleum Institute's (API) Recommended Practice 1173**." Governor Charlie Baker stated, "We are proud to work with the Northeast Gas Association and its members to ensure that a culture of safety is in place at every level of utility business operations, and that the best possible policies and oversight are in place to protect public safety."

NGA and its members have been working with Department staff on state-wide implementation of API RP 1173. NGA agrees that implementation of PSMS will provide a consistent approach to safety and risk management framework needed to enhance overall operational behaviors and equally important, a paradigm shift in sustainable safety culture focus. NGA believes that implementation of a PSMS approach to day-to-day operations, including the engineering design review process, provides additional accountability and a defense in depth process approach for many of the engineering tasks defined under Complex Projects of the Straw Proposal.

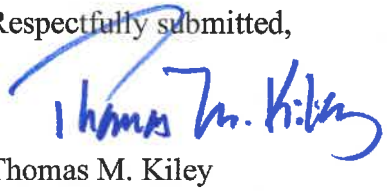
In order to achieve the safety goal of zero incidents, NGA believes a rigorous design review process based on core principles of safety management systems is necessary. The defense in depth benefits of an end-to-end process built around principles of RP 1173 provides greater assurance of a safe system as compared to simply relying on a single credentialed individual. It is NGA's opinion that the optimal safety solution is application of a rigorous company specific design review process by a series of competent individuals, committed to the best public safety outcome, with traceable

accountability for their responsibility in the review. This includes use of professional engineers for non-standard complex projects. NGA believes, similar to the thought process of recently released Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA) regulations, a risk-based approach to defining non-standard Complex Projects is needed. NGA requests that the Department meet with NGA and its members, prior to proceeding with the PE Straw Proposal, to review the progress of PSMS implementation and how it provides the added layers of safety needed for the design of the state's distribution and transmission facilities.

CONCLUSION:

NGA and the Commonwealth of Massachusetts gas operators appreciate the opportunity to present these comments. We strongly believe that the next step in this important process should be face-to-face technical sessions to discuss in detail the impacts and challenges of the PE Straw Proposal, clarify the engineering work defined and offer alternatives that provide a greater degree of safety value than what is currently being proposed.

Respectfully submitted,



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