NATIONAL ASSOCIATION OF STATE UTILITY CONSUMER ADVOCATES
Resolution 2020-03

Adoption of New Safety Recommendations Proposed by the National Transportation Safety Board

Whereas, on September 13, 2018, a series of explosions and fires occurred after high-pressure natural gas was released into a low-pressure gas distribution system in the northeast region of the Merrimack Valley, Massachusetts;[1]

Whereas, this system over-pressurization and resulting natural gas explosions resulted in death and serious injuries to the public and damaged 131 structures, including at least 5 homes, that were destroyed in the city of Lawrence and the towns of Andover and North Andover, Massachusetts;

Whereas, prior to the accident, Columbia Gas of Massachusetts ("Columbia Gas"), a subsidiary of NiSource, Inc., had an overarching plan to replace 7,595 feet of low-pressure, existing cast-iron, installed in the early 1900s, that had been partially improved with both steel and plastic pipe upgrades since the 1950s;

Whereas, when Columbia Gas disconnected the distribution main in Merrimack Valley the regulator-sensing lines were still attached to the disconnected distribution main. Once the contractor crews disconnected the distribution main that was being abandoned, the section of the system containing the regulator-sensing lines began losing pressure. As the pressure in the abandoned distribution main dropped, the system's distribution regulators responded by opening further, increasing pressure in system. The regulators opened completely when they no longer sensed system pressure, allowing the full flow of high-pressure gas to release into the distribution system supplying the neighborhood. As a result, natural gas was delivered to customers at a pressure well above the maximum-allowable operating pressure which led to the ignition of fires and explosions in homes;

Whereas, the National Transportation Safety Board ("NTSB") determined that the probable cause of the over pressurization of the natural gas distribution system and the resulting fires and explosions was Columbia Gas' weak engineering management that did not adequately plan, review, sequence, and oversee the construction project that led to the abandonment of a cast iron main without first relocating regulator sensing lines to the new polyethylene main. Contributing to the accident was a low-pressure natural gas distribution system designed and operated without adequate overpressure protection.[2]

Whereas, in its review of the explosion, the NTSB discovered omissions in the engineering work package and construction documentation for the project. The work package did not account for the location of the sensing lines or require their relocation to ensure the regulators were sensing actual system pressure;

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[1] *See* National Transportation Safety Board, NTSB/PAR-19/02 PB 2019-101365, *Overpressurization of Natural Gas Distribution System, Explosions, and Fires in Merrimack Valley, Massachusetts September 13, 2018* (2019).
[2] *Id*., at 49.

Whereas, the NTSB determined that constructability reviews are a recognized and generally accepted good engineering practice for the execution of professional design services and are intended to provide an independent and structured review of construction plans and specifications to ensure there are no conflicts, errors, or omissions, and that the review should be performed by qualified professionals to identify deficiencies and incorporate improvements into the construction documents. [3] Many jurisdictions also require that plans be approved (sealed) by a professional engineer ("PE") licensed to perform engineering in the jurisdiction;

Whereas, the NTSB believes a complete comprehensive constructability review requires all departments to review each project and have the seal of approval from a PE. By sealing the project plans, the PE takes responsibility for the accuracy and completeness of the engineering package. [4]

Whereas, the Columbia Gas explosions that occurred in 2018 are only the most recent example of the dangers involved in working on and around natural gas systems. Massachusetts is not unique from other natural gas systems around the country with regard to the age, placement or maintenance history of local gas distribution systems. In fact, a similar event could occur in many other places in the U.S. and would have similar consequences.[5]

Whereas, according to the National Society of Professional Engineers ("NSPE"), in many states PE's are not required to review and approve project plans, such as those used in this accident, because they have industrial, public utility, or other exemptions. The NSPE has advocated for the phasing out of existing industrial exemptions in state licensing laws. Exempt individuals and organizations are not subject to the same legal and ethical requirements as those who are licensed;

Whereas, the NTSB believes that it is critical that an engineer with the appropriate qualifications and experience review engineering plans for a gas company, if not develop them. The PE licensure is a regulatory instrument for advancing the public good, protecting employers and the public, and ensuring that the engineering work was performed consistent with a standard of care and in accordance with a strict code of ethics.[6]

Now, Therefore, Be It Resolved: Every effort should be made to adopt the NTSB's new safety recommendations resulting from their investigation of this explosion,[7] including calling for the Pipeline and Hazardous Materials Safety Administration to:

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[3] *Id*., at 16.
[4] *Id*., at 29-31.
[5] *Id*., at 23-26.
[6] According to the National Society of Professional Engineers (NSPE), in order to use the PE seal, an engineer must earn a 4-year degree in engineering from an accredited engineering program, pass the Fundamentals of Engineering exam, complete 4 years of progressive engineering experience under the guidance of a registered PE, and pass the Principles and Practice of Engineering exam. The qualifications required for licensure as a PE in the United States are set by each jurisdiction through the state's engineering statute, and rules established by the state board of licensure of professional engineers implementing those statutory requirements. The law and the rules differ in each state. National Transportation Safety Board, NTSB/PSR-18/02, *Safety Recommendation Report* (2018).
[7] National Transportation Safety Board, Accident Report, supra, at 50.

1. Revise Title 49 *Code of Federal Regulations* Part 192 to require overpressure protection for low-pressure natural gas distribution systems that cannot be defeated by a single operator error or equipment failure.

2. Issue an alert to all low-pressure natural gas distribution system operators of the possibility of a failure of overpressure protection; and the alert should recommend that operators use a failure modes and effects analysis or equivalent structured and systematic method to identify potential failures and take action to mitigate those identified failures.

Be it further resolved, that: The states should make every effort to adopt the NTSB's recommendation calling for the removal of industrial exemptions in state licensing laws so that future natural gas infrastructure projects require licensed professional engineer approval and stamping.

Be it further resolved, that: Specific safety issues must be taken into consideration by State Commissions when reviewing the design and construction of natural gas projects. These issues include the compliance with natural gas regulations, project documentation, constructability review, project management, risk assessment, safety management systems, and approval of natural gas projects by licensed PEs, as these are imperative to ensuring the safety of the public.

Be it further resolved, that NASUCA authorizes its Executive Committee to develop specific positions and take appropriate actions, consistent with the terms of this resolution and the needs of its Members and their utility consumers. The Executive Committee shall notify the membership of any action pursuant to this resolution.

Submitted by the Natural Gas Committee

Approved: November 12, 2020
2020 NASUCA Annual Meeting

Abstained:
North Carolina Attorney General