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July 2, 2014
By Email for Electronic Filing

Hon. Kathleen H. Burgess
Secretary
New York State Public Service Commission
Three Empire State Plaza
Albany, New York 12223

Re: Case 14-G-0212 – Proceeding on Motion of the Commission to Investigate the Practices of Qualifying Persons to Perform Plastic Fusions on Natural Gas Facilities

Dear Secretary Burgess:

The Public Service Commission's *Order Instituting Proceeding to Investigate Consolidated Edison Company of New York, Inc.'s Practices and Obtain Information Concerning Plastic Fusions on Natural Gas Facilities* ("Order") issued June 27, 2014, directs Consolidated Edison Company of New York, Inc. to provide within five days information specified in ordering paragraphs two through eight. The required information is provided in the attached document titled *Response of Consolidated Edison Company of New York, Inc. to Ordering Paragraphs Two through Eight of June 27, 2014 Order*.

Very truly yours,

[redacted]

Attachment

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

Proceeding on Motion of the Commission to Investigate the Practices of Qualifying Persons to Perform Plastic Fusions on Natural Gas Facilities	:	**Case 14 G-0212**

RESPONSE OF CONSOLIDATED EDISON COMPANY OF NEW YORK, INC. TO ORDERING PARAGRAPHS TWO THROUGH EIGHT OF JUNE 27, 2014 ORDER

INTRODUCTION

On June 27, 2014, the Public Service Commission issued an *Order Instituting Proceeding to Investigate Consolidated Edison Company of New York, Inc.'s Practices and Obtain Information Concerning Plastic Fusions on Natural Gas Facilities* ("Order"). Ordering paragraphs two through eight of the Order direct Consolidated Edison Company of New York, Inc. ("Con Edison" or "the Company") to provide within five days specified information regarding (a) the current and ongoing qualification of its employees and contractors to perform fusion of high-density polyethylene ("plastic") pipe and fittings and (b) actions that the Company is undertaking to maintain the safety of the gas system in light of installer qualification lapses that the Company has discovered. Con Edison is providing the required information in this response. [1]

As discussed in detail below, Con Edison is confident in the integrity of the plastic piping installed in our gas distribution system. Con Edison is confident that the prior lapses in installer qualification did not compromise the integrity of our gas system and that all plastic pipes placed

[1] Con Edison is preparing additional information for production on July 7, 2014 and July 14, 2014, as required by ordering paragraphs 10 and 11, respectively.

in service have been fused and tested according to acceptable procedures and specifications. We are developing initiatives to further assure the integrity of this piping.

Con Edison recognizes our responsibility and the importance of conforming to the Commission's safety regulations, including installer qualification. The information provided below in response to the Order demonstrates that the Company has taken appropriate steps to conform to the Commission's qualification requirements for ongoing fusion work.

RESPONSES TO ORDERING PARAGRAPHS TWO THROUGH EIGHT OF JUNE 27, 2014 ORDER

Response to Ordering Paragraphs 2 and 8:

> 2. Consolidated Edison Company of New York, Inc. shall, as soon as practicable but no later than within five days of the date of this order, identify the steps it is taking to verify its continued provision of safe and adequate gas service, particularly how the Company will ensure, through on-site inspection or by other means, that work performed on gas facilities during the period of non-compliance with 16 NYCRR Part 255 has not resulted in defective fusions or other adverse consequences.
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> 8. Consolidated Edison Company of New York, Inc. shall, as soon as practicable but no later than within five days of the date of this order, explain how it will ensure that any work performed on its gas facilities during the period of non-compliance did not result in defective fusions or other adverse consequences.

Con Edison has long sought to ensure the integrity of its plastic gas mains and services through a multifaceted, quality control approach that encompasses the purchase, installation, testing and performance tracking of piping and components installed on the system, as well as installer qualification. The paragraphs below on materials, training, visual inspection, pressure testing, and leakage tracking describe this approach.

In addition, Con Edison is developing two additional initiatives – enhanced leakage surveys and on-site, fusion joint inspections – to supplement these measures and further assure the integrity of the gas system. These initiatives are discussed below as well.

Plastic Materials

Piping, fittings, and other system components are specified to be made from high quality plastic materials by select manufacturers. This ensures consistency in material quality that enhances the repeatability of high quality fusion joints during installation.

Training

Con Edison installers are provided the knowledge and training necessary to properly join plastic pipe. Every fusion joint made on the Con Edison system is constructed by an installer who has been thoroughly trained in fusing techniques. Con Edison's installers are trained to follow detailed instructions for the installation of plastic fusion joints that incorporate and build upon the procedures developed by manufacturers and industry groups like the Plastic Pipe Institute.[2] These instructions contain separate step-by-step fusion instruction modules for different pieces of approved fusion equipment.[3] The procedures identify and prescribe acceptable criteria for all of the essential elements that must be controlled in order to perform acceptable fusion joints. Con Edison's Learning Center has developed written materials and practical applications, including written testing and hands-on testing, to effectively teach and train employees and contractors to perform fusing using these fusing procedures. The hands-on testing requires each student to demonstrate understanding of the procedures and ability to produce a fusion joint of acceptable quality.

[2] Con Edison Specification G-8123 governs "Heat Fusion Joining of Polyethylene Plastic Pipe/Tubing and Fittings for Gas Mains and Services," while IP-27-4 governs "Installation of Electrofusion Fittings on Plastic Pipe/Tubing and Molded Fittings Using a Universal Electrofusion Processor."

[3] Specification G-8123, Section 6, "Operation of Butt Fusion and Sidewall Fusion Equipment."

Visual Inspection

The Company's installers are trained to differentiate visually between acceptable and unacceptable fusions. Con Edison's written fusing procedure requires that the installer visually inspect the entire circumference of the fusion joint for the visual criteria of a good quality fusion joint. Butt fusion joints should have the double fusion beads rolled over to the surface, be uniformly rounded, and consistent in size all around the joint. Sidewall and branch saddle fusion joints should have three complete fusion beads around the entire joint.[4] Photographs of acceptable fusion joints are presented in the training materials used to instruct installers in fusing procedures. An installer's experience in repeatedly making joint fusions reinforces expertise in assessing the quality of a fusion joint. The use of a visual quality inspection is the current industry standard method for evaluating the quality of field fusion joints; it also satisfies the field fusion inspection code requirements.[5]

Pressure Testing

Pressure testing of mains and services is performed after the installers have completed fusing work and prior to customer turn-on. These pressure tests provide objective verification that mains and services are leak free by subjecting them to pressures higher than they will experience in normal service.[6] Test pressures range from 1.5 times the maximum allowable operating pressure (MAOP), in the case of high pressure mains, to several hundred times the MAOP, in the case of low pressure mains and services. As an example, for the low pressure system, where typical operating pressures are 0.25 psig, a 90 psig pressure test is performed. This is 360 times the normal operating pressure of the system. For some short

[4] Specification G-8123, Section 3.4. This specification also requires that the installer verify iron temperature and melt, soak, and fusion pressures for each fusion joint at the time it is made.
[5] See 16 NYCRR 255.273(c) and 255.281(c)
[6] Con Edison Specification G-8204.

sections, where high pressure testing is not possible, mains or services are soap bubble tested at line pressure to provide assurance they are leak free.

Leak Tracking: Sources and Causation

One very important demonstration of the quality of fusion joints on the Company's gas distribution system is the very low number of fusion-related leaks on mains and services. Con Edison tracks all failures of plastic pipe and reports this information to the New York State Public Service Commission. For the 222 miles of plastic mains and 46,000 services (and associated fittings) installed from January 1, 2011 to date, Con Edison has had a total of four fusion-related leaks on in-service piping. Of these four leaks, one was related to fusing workmanship; the root cause of the other three could not be determined.

This low leak rate demonstrates that the procedures and practices utilized by Con Edison's employees and contractors during main and service installation have produced sound fusion joints.

Additional Initiatives

In addition to the ongoing multifaceted program described above, Con Edison is developing a substantially enhanced leakage survey program and a new on-site inspection program that will further assure the integrity of the gas system. These two initiatives are in the developmental stage and are discussed below.

Increased Leak Surveys

Federal and State codes require an annual leakage survey on all gas distribution mains and an annual leakage survey on services located in areas that are considered business districts. The codes also require leakage surveys once every five years on all services located outside of business districts. Con Edison meets the code requirement for an annual leak survey of

distribution mains and business district services and exceeds the code requirement by surveying non-business district services every three years. Federal and State codes require an annual leakage survey of transmission mains. Con Edison surveys its transmission mains three times per year. In addition, on an annual basis, the Company completes about 90 other "special" leakage surveys at various Con Edison facilities, as well as hospitals, school campuses, churches, other private and public properties, and also prior to large public events (e.g., Times Square for New Year's Eve and the Thanksgiving Day Parade route).

In addition to the leakage survey intervals described above, Con Edison is developing a program that will substantially increase the number of leakage surveys performed each year. Currently, a fleet of vehicles scans our underground electric distribution system twelve times a year, checking for contact or stray voltage. The Company recently initiated a pilot program that combines its gas leak detection equipment with its electric stray voltage equipment on the same vehicle. The pilot program began with the deployment of one vehicle outfitted with stray voltage and leak survey equipment, and is being expanded to three vehicles. The deployment of these three additional "high speed" pilot vehicles enables the Company to survey about 300 miles of gas distribution mains each week, which is almost three times more than the area covered weekly by the distribution main survey described above. Moreover, the addition of the pilot program to the ongoing survey programs enables the Company to conduct gas leak surveys on its system every day. The pilot is also providing data and experience that will allow Con Edison to develop a permanent program that will support monthly "high speed" surveys of its entire gas system, thus increasing the frequency of annual distribution main surveys from once a year to thirteen times a year.

Additional Initiative – On-Site Fusion-Joint Inspection Program

To further validate the integrity and safety of its gas system, Con Edison is also establishing the parameters for a program that will provide for the on-site inspection of existing plastic fusion joints exposed during work. The program will include protocols for the visual examination of plastic fusion joints, and if necessary, removal for further testing. Con Edison will provide to the Department of Public Service Staff inspection results as they become available.

Response to Ordering Paragraphs 3, 4, 5, and 6

> 3. Consolidated Edison Company of New York, Inc. shall, as soon as practicable but no later than within five days of the date of this order, certify the date and manner it discovered that its company-wide plastic fusion qualification and requalification procedures were not in compliance with 16 NYCRR Part 255.
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> 4. Consolidated Edison Company of New York, Inc. shall, as soon as practicable but no later than within five days of the date of this order, certify that any and all persons who are currently performing plastic fusions are fully qualified to do so pursuant to 16 NYCRR Part 255.
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> 5. Consolidated Edison Company of New York, Inc. shall, as soon as practicable but no later than within five days of the date of this order, certify the date it stopped performing plastic fusions after learning that its employees and contractors who performed plastic fusions were out of compliance with 16 NYCRR Part 255.
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> 6. Consolidated Edison Company of New York, Inc. shall, as soon as practicable but no later than within five days of the date of this order, certify that the Company did not recommence work on any plastic fusions until its employees and contractors were requalified to perform such work in accordance with 16 NYCRR Part 255.

The certifications requested by ordering paragraphs 3, 4, 5, and 6 are provided in Appendix A to this response.[7]

Con Edison has taken prompt action to remediate the lapses in worker qualification and requalification to ensure that only installers qualified pursuant to the Commission's rules are now performing fusions on the gas system. The Company brought in experts from the Northeast Gas Association to re-qualify our instructors and to oversee the re-qualification process of the installers who perform fusing. The Company stopped all fusion work and began re-qualifying all Company and contractor employees who perform fusing. That requalification included demonstration of proficiency in making all five requisite types of fusion joints and the destructive testing of each such specimen joint for integrity. Only newly re-qualified installers are now performing fusing work on the gas system.

Response to Ordering Paragraph 7

> 7. Consolidated Edison Company of New York, Inc. shall, as soon as practicable but no later than within five days of the date of this order, indicate how it will continue to ensure that all persons are properly qualified and requalified by producing a description of the Company's processes used to ensure compliance with 16 NYCRR Part 255, including the Company's schedule of qualification and requalification pertaining to gas safety rules.

To ensure that individuals are properly qualified and requalified, Con Edison has adopted the NGA Plastic Pipe Joining Qualification Program, which will enable the Company to ensure that its testing procedures are aligned with industry standards and code requirements as set forth

[7] As noted in the Order, Con Edison informed Staff that the Company had failed to timely requalify employees and contractors who performed plastic fusions pursuant to the Company's then-existing specification. As the Company identified such employees and contractors, they were subject to requalification in order to continue to perform plastic fusions. As indicated in the certification, these employees and contractors were requalified again when the Company updated its specification.

in 16 NYCRR §255.285. In addition, our internal Gas Operations Standards, which specify the qualifications that must be met by installers performing heat fusion or electrofusion of plastic pipe, have been revised to include both visual inspection and destructive testing. As outlined in our Operator Qualification Written Plan, employees are requalified every three years in plastic pipe joining and all other operator qualification tasks. Consistent with the NGA Plastic Pipe Joining Qualification Program, installers of plastic pipe are annually requalified in plastic fusing. The annual requalification has been revised to incorporate both visual inspection and destructive testing.

The Company has begun to revise the annual requalification process to embed greater controls for managing the qualification and requalification for all persons performing plastic joining to assure full compliance. We have enhanced the education and understanding of our field operations personnel responsible for the oversight of operator qualified mechanics and/or gas contractors through the use of on-the-job training targeting operator qualification. Additional reviews of operator qualification cards and training records documenting compliance will be conducted. The Company is also exploring the use of technology to leverage tools that can further enhance our compliance programs.

CONCLUSION

Con Edison recognizes our responsibility and the importance of conforming to the Commission's safety regulations including installer qualification. Upon recognizing lapses in our installer qualification process, the Company acted promptly to take appropriate steps to conform to the Commission's qualification requirements for ongoing fusion work.

Con Edison is confident in the integrity of the plastic piping installed in our gas distribution system. Con Edison is confident that the prior lapses in installer qualification did not compromise the integrity of the gas system and that all plastic pipes placed in service have been fused and tested according to acceptable procedures and specifications. We are developing initiatives to further assure the integrity of this piping.

Dated: July 2, 2014

Respectfully submitted,

Edward Foppiano

Senior Vice President
Gas Operations

APPENDIX A

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

Proceeding on Motion of the Commission to Investigate the Practices of Qualifying Persons to Perform Plastic Fusions on Natural Gas Facilities	:	**Case 14 G-0212**

Edward Foppiano, in his capacity as Senior Vice President, Gas Operations, certifies that to his knowledge, based upon reasonable due diligence conducted by Consolidated Edison Company of New York, Inc. ("Con Edison"), that:

1. On the evening of May 28, 2014, Con Edison concluded that its plastic fusion qualifications and requalification procedures were not in compliance with 16 NYCRR Part 255.285(c), to the extent that this regulation requires that physical (destructive) testing methods be used to evaluate specimen fuses made under an applicable joining procedure as part of qualification and requalification processes.

2. Con Edison came to the conclusion described in Paragraph 1 after: learning the extent to which other utilities used physical (destructive) testing methods to evaluate specimen fuses as part of their qualification and requalification process; discussing specifications and code requirements with employees; conferring with outside counsel; and discussing the issue with its in-house attorneys.

3. On the evening of May 28, 2014, Con Edison directed that all plastic fusion work be stopped beginning with the work scheduled on the morning of May 29, 2014.

4. Con Edison did not recommence work on plastic fusions until it could do so with employees and contractors who were requalified to perform such work in accordance with 16 NYCRR Part 255.285.

5. All persons who are currently performing plastic fusions are fully qualified pursuant to 16 NYCRR Part 255.285.

Dated: July 2, 2014