

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

At a session of the Public Service
Commission held in the City of
Albany on January 16, 2008

COMMISSIONERS PRESENT:

Garry A. Brown, Chairman
Patricia L. Acampora
Maureen F. Harris
Robert E. Curry, Jr.
Cheryl A. Buley

CASE 07-S-0984 – In the Matter of the Investigation of the Consolidated Edison
Company of New York, Inc.'s Steam Pipe Rupture of July 18, 2007,
East 41 Street and Lexington Avenue, New York, New York.

ORDER DIRECTING COMPANY TO SHOW CAUSE

(Issued and Effective January 18, 2008)

INTRODUCTION

On December 17, 2007 Consolidated Edison Company of New York, Inc. (Con Edison or Company) issued its Recommendation and Action Plan together with the reports of its two consultants (together the Reports¹) concerning the July 18, 2007 steam incident at 41st Street and Lexington Avenue. These Reports raise serious concerns about the Company's safe and adequate operation of the Con Edison steam system prior to the July 18 incident. This Order requires the Company to show cause why the Commission should not initiate a prudence proceeding to determine whether the Company was

¹ These Reports were provided by the Company pursuant to 16 NYCRR §420.12 which imposes requirements for a report from the Company within 30 days of any incident which causes injury or death to any persons or damage to property. The Company met all of the §420.12 reporting requirements within 30 days except a requirement to report the results and findings of its post-incident investigation. This aspect of the 30 day report was delayed pending the completion of the reports of its consultants. The consultants' reports were provided to the Company and, by the Company, to Staff on December 18, 2007 and to the public on December 27, 2007.

imprudent with respect to the management of its steam system, and we will also direct the Company to explain why additional procedures should not be implemented to improve the operation of the steam system.²

BACKGROUND

On July 18, 2007 a steam pipeline owned and operated by Con Edison suffered a catastrophic failure in the intersection of 41st Street and Lexington Avenue in Manhattan. Steam broke through the pavement, creating a large crater in the intersection, causing serious bodily injury to two persons and less severe injuries to many others. One person suffered a heart attack while fleeing the area and died. Many adjacent businesses suffered property damage from the explosion and, in the days following the incident, many suffered significant economic loss until the damaged steam equipment could be repaired and the area in the vicinity of the incident could be restored.

As noted above, the Company's consultants prepared two reports with respect to the July 18 incident, and these Reports were made available to the Staff on December 18, 2007 and to the public on December 27, 2007. These Reports determined that the steam pipe rupture was the result of excessive internal pressure from a condensation-induced waterhammer. According to Con Edison, the condensation-induced waterhammer occurred when steam in the pipe cooled to produce excessive condensate build up inside the steam pipe. According to Con Edison and its consultant, this cooling and build up of condensation was caused by: 1) flooding of the steam system piping at the intersection due to heavy rain, and 2) substantially compromised steam traps which were unable to remove condensate from the steam pipe quickly enough to avoid this dangerous accumulation.

² The inquiry we start with this order is only one aspect of the Commission's regulatory response to the July 18, 2007 steam incident. The Department staff is conducting an independent investigation of the incident and will report the results of its review. This may lead to further enforcement and/or rulemaking actions. In addition, issues arising out of this incident and the Company's response may also be addressed in the Company's pending rate case (Case 07-S-1315 – Con Edison Company of New York Steam Rates).

DISCUSSION

Based on Con Edison's Reports, the circumstances underlying each of the identified causes raise serious concerns about the Company's management of the steam system.

A. Excessive External Water Conditions Surrounding the Steam Pipe

The Con Edison Reports indicate that the area in question, at which the steam main is located deep beneath the roadway, is known to Con Edison to be susceptible to flooding. That particular day there was heavy rain in the morning. The steam facility manhole at that location has been subjected to pumping on many prior occasions after heavy rains and Con Edison appears to have known that such rain could contribute to external water accumulating around the steam pipe; Con Edison nevertheless only employed its vapor patrol procedure to manage this situation. This procedure only requires utility personnel to observe the street above the steam main and look for steam (vapor) above ground. Such vapor, when found, is an indication of external water in contact with the steam pipe buried in the street below. Under the Vapor Patrol protocol, however, the street above steam facilities such as this are not under continuous surveillance. The patrol visually inspected the site that day approximately three and one half hours after a period of intense rainfall. No vapor condition was observed at that time. A review of surveillance camera tapes showed that a vapor condition did exist earlier in the day and could have been observed by Con Edison, if a patrol had been made earlier. According to the Company's procedures, had the vapor been observed, the manhole would have been lifted and the area would have been pumped to remove the excess water.

The Con Edison Reports also evaluated the steam pipe at a manhole in the intersection where this incident occurred. This evaluation found observable indentations in the pipe and concluded that prior waterhammer events insufficient to burst the pipe had likely occurred at the incident site. It is unclear in the Reports whether the Company was aware of the observable indentations in the pipe prior to the incident, although the presence of a weld repair at one of the indentations suggests that the Company knew or should have known the pipe had experienced damage. The questionable condition of the

pipe, which the Company should have been aware of, and the persistence of flooding of the steam pipe enclosure at this site raise serious questions as to whether the steam system was operated in a prudent manner on this day. Therefore, Con Edison is directed to show cause why a prudence investigation should not take place to determine whether Con Edison had adequate system surveillance and response procedures. In particular, the Company should demonstrate: 1) why the visual inspections it conducted at the steam main flood areas were sufficient to determine the presence of dangerous levels of excess water in a manhole area; 2) why the timing and frequency of patrols under its procedures were sufficient to safely identify any dangerous subsurface conditions; 3) whether the Company has in the past investigated practices beyond vapor patrols, such as the use of automatic pumps and water level detection monitors or other means of directly observing water levels, and if so, why those other practices were not employed at this site; 4) whether the Company's inspection procedures and related record-keeping should have led to further analysis of the pipe indentations so as to determine the course and implementation of necessary corrective actions; and 5) what additional practices and procedures were in place and, if there were any, why such procedures failed to ensure the safe operation of the Company's steam system. In addition we are also directing the Company to demonstrate that the scope, timing, and frequency of its new vapor and manhole inspection procedures will be adequate to ensure the safety of the steam system.

B. Compromised Steam Traps

The second identified causal factor was the compromised steam traps. The traps, designed to remove condensate from the pipes, were clogged with leak sealant material that had apparently migrated from repairs of a near-by pipe flange. Con Edison explains that it inspects all distribution steam traps at a maximum interval of ten weeks. This is, however, limited to an audible and a visual inspection of the outside of the trap. The Reports indicate that the flange at issue had been sealed approximately ten times since July 2005, and that each flange sealing had the potential to leave excess material inside the steam pipe. After the last use of the sealant on March 14, 2007, while the system was purged to clear condensate and debris from the steam main and trap lines, no

further actions are reported to have monitored the steam pipe or the traps for debris. The Company is therefore directed to show cause why a prudence investigation should not take place to determine whether the procedures it used to seal the flange adjacent to the incident site conformed to industry practices, whether the procedures used to inspect and maintain the steam traps in the vicinity of the incident site were sufficient to assure that the steam traps would not be compromised, and whether the Company's failure to timely replace the flange at issue was unreasonable. In addition, we are also directing the company to: 1) discontinue the use of leak sealant injections as a method to seal leaks unless the Company can demonstrate why it should be permitted to continue the use of leak sealant injections; and 2) demonstrate that its trap monitoring and inspection procedures are adequate to determine that the traps are working properly.

CONCLUSION

No one single factor alone created the waterhammer condition that led to the catastrophic failure of the steam pipe at 41st Street and Lexington Avenue on July 18, 2007. However, given the series of apparent inadequate monitoring, repair and maintenance procedures, we find there is cause to inquire as to the reasonableness and adequacy of the Company's steam system procedures. Accordingly, we direct Con Edison to show cause why a prudence investigation should not be instituted as set forth in this order to identify the imprudence, if any, exhibited by the company in the management of its steam system, and, if the Company was not prudent, to protect ratepayers from any costs incurred as a result of the July 18, 2007 steam incident.

The Commission orders:

1. Consolidated Edison of New York, Inc. is ordered to show cause, within ten (10) days of the date of the Order, why the Commission should not institute a prudence proceeding as set forth in this Order.
2. Consolidated Edison Company of New York, Inc. is directed to demonstrate within ten (10) days of the date of this Order: 1) why the visual inspections it conducted at the steam main flood area were sufficient to determine the presence of

dangerous levels of excess water in a manhole area; 2) why the timing and frequency of patrols under its procedures were sufficient to safely identify any dangerous subsurface conditions; 3) what other practices besides vapor patrols it has investigated and why those methods were not employed; 4) whether adequate inspection of the pipe should have led to further analysis of the pipe indentations to determine the cause and take necessary corrective actions and; 5) what additional practices and procedures were in place and why those were inadequate to ensure the safety of the system.

3. Consolidated Edison Company of New York, Inc. is directed within ten (10) days of the date of this Order to demonstrate that the scope, timing and frequency of its new vapor and manhole inspection procedures will be adequate to ensure the safety of the steam system.

4. Consolidated Edison Company of New York, Inc. is directed within ten (10) days of the date of this Order to demonstrate: 1) why its leak sealant injection procedures for flange repairs were safe and acceptable and in conformance with industry practices, 2) why its trap inspection procedures were adequate to identify traps which were compromised by sealant materials used nearby and 3) whether the Company's failure to timely replace the flange at issue was not unreasonable.

5. Consolidated Edison Company of New York, Inc. is directed within ten (10) days from the date of this Order to: 1) discontinue the use of leak sealant injections as a method to seal leaks unless the Company can demonstrate why it should be permitted to continue the use of leak sealant injections; and 2) demonstrate that its trap monitoring and inspection procedures are adequate to determine that the traps are clear and working properly at their design capacity.

6. This proceeding is continued.

By the Commission,

JACLYN A. BRILLING
Secretary