



The Commonwealth of Massachusetts

DEPARTMENT OF PUBLIC UTILITIES

PIPELINE ENGINEERING AND SAFETY DIVISION

INCIDENT REPORT

96 The Fenway, Boston, Massachusetts

April 6, 2005

PIPELINE ENGINEERING AND SAFETY DIVISION

Accident File

Location: 96 The Fenway, Boston, Massachusetts

Date of Accident: April 6, 2005

Gas Company: KeySpan Energy Delivery, New England

Estimated Property Damage: \$800,000*

Injuries: Seven

Report Issued: September 2008

* Estimated by Boston Fire Department

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I. INTRODUCTION

A. Scope of this Investigation

The Massachusetts Department of Public Utilities (the "Department"), pursuant to G.L. c. 164, §105A, has investigated a natural gas ("gas") explosion at 96 The Fenway, Boston, Massachusetts, which occurred on April 6, 2005, (the "Incident").¹ There were seven injuries as a result of the Incident. The Incident resulted in approximately \$800,000 of property damage as estimated by the Boston Fire Department ("the Fire Department") (Exh. 1). The operator of the pipeline was KeySpan Energy Delivery, New England, d/b/a Boston Gas Company ("KeySpan" or "Operator").

As part of the Department's annual certification process by the United States Department of Transportation ("DOT"), the Department must report to the DOT

[e]ach accident or incident . . . involving a fatality, personal injury requiring hospitalization, or property damage or loss more than an amount the Secretary establishes, any other accident the [Department] considers significant, and a summary of the investigation by the authority of the cause and circumstances surrounding the accident or incident.
49 U.S.C. § 60105(c)

The purpose of this report is to inform the DOT of the cause and circumstances surrounding the Incident.

The Department has established procedures for determining the nature and extent of violations of codes and regulations pertaining to the safety of pipeline facilities and the transportation of gas, including but not limited to, 220 C.M.R. §§ 101.00 through 113.00. See 220 C.M.R. §§ 69.00 et seq. The Department also enforces the DOT safety standards for gas pipeline systems as set forth in 49 C.F.R. § 192 et seq.

¹ Incident means any of the following events:
(1) An event that involves a release of gas from a pipeline or of liquefied natural gas or gas from an LNG facility and
(i) A death, or personal injury necessitating in-patient hospitalization; or
(ii) Estimated property damage, including cost of gas lost, of the operator or others, of \$50,000 or more.
(2) An event that results in an emergency shutdown of an LNG facility.
(3) An event that is significant, in the judgement of the operator, even though it did not meet the criteria of paragraphs (1) or (2). 49 CFR § 191.3.

The Department has reason to believe that violations of the DOT's rules pertaining to the safety of pipeline facilities and the transportation of gas, the Department's Code of Massachusetts Regulations and KeySpan's own Gas Construction Standards, Specifications and Procedures ("Procedures") occurred at 96 The Fenway, Boston. The Department concluded an enforcement action on April 25, 2008 that included actions to prevent a similar incident in the future.

B. Overview of Incident

The Fire Department Incident Report indicates that on April 6, 2005, at 1323 hours (1:23 p.m.) it received notification of a building fire at 96 The Fenway (Exh. 1). The Incident Report attributed the fire to a leak or break that caused an unintentional ignition. The Fire Department estimated property damage at \$800,000.

KeySpan's report of this Incident to the DOT, stated that the cause of the incident was a release of gas. KeySpan stated that:

Release of gas. A Company crew was activating a gas main and service at 96 Fenway, Boston, MA. A second crew had been working in the basement of the building, installing the internal piping for the service while the other crew worked on the gas main in the street.

(Exh. 2)

KeySpan reported that there were seven injuries, including one person who was hospitalized overnight. (Exh. 3)

KeySpan's concluded that a:

Fitting crew inadvertently left valve on service relay open and went to lunch. Crew (MSF) activated main not knowing the valve was in open position.

(Exh. 4)

The Department first learned of this Incident when the Director, Pipeline Engineering and Safety Division ("Division") received a call from a Department employee about 2:05 p.m. to alert him of an incident at Northeastern University ("Northeastern"). The Director immediately contacted a KeySpan dispatcher who verified there was an explosion at Kerr Hall, a dormitory located at 96 The Fenway. The dispatcher stated "a crew was working on a service line, and someone may have turned the gas back on prematurely" (Exh. 5)

The Department's investigation finds that the explosion and resulting fire at 96 The Fenway were caused by the ignition of an accumulation of gas in the basement of the building. The origin of the gas was from a new main that had just been placed into service by a KeySpan distribution crew. Gas entered the basement through the service valve, which had been inadvertently left open, and the open end of the internal piping that a second KeySpan crew was installing from the service valve in the basement toward the meter location (Exh. 6). The Department was not able to determine the ignition source.

II. BACKGROUND

The Incident occurred at 96 The Fenway, a Northeastern dormitory. The Fenway connects Brookline Avenue and Beacon Street and is located in a mixed residential/commercial area of Boston, consisting primarily of multi-story apartments and small businesses. The Back Bay Fens, a park, is located directly west of The Fenway at this location. Hemenway Street is located east of The Fenway, separated by an alley approximately twenty feet wide between the rear of the buildings along these two streets. The gas facilities supplying 96 The Fenway, as well as numbers 90, 102 and 112-114, are located in this alley.

The basement of 96 The Fenway contained a gas fired heating boiler, two gas fired water heaters, a gas meter and incidental piping and electrical wiring. A three-inch bare steel service line², installed in 1926 (Exh. 7), supplied gas to the building from the main in the alley, entering the basement through the east foundation wall. It was connected to a gas meter, located in the basement. The service line was not cathodically protected.

A new three-inch plastic service with a three-inch steel service valve and a blank flange installed on the outlet side, had recently been installed into the basement.

A six-inch cast iron gas main was installed in the alley in 1913 (Exh. 8). The operating pressure³ of the main was 8.5 inches water column⁴ ("in. w.c.") (Exh. 9). The maximum allowable operating pressure⁵ ("MAOP") of the main is 14 "in. w.c." (id.). A new six-inch

² A service line is a distribution line that transports gas from a common source of supply to an individual customer. . . Part 192, § 192.3.

³ The approximate operating pressure was based on KeySpan engineering models.

⁴ Inches water column - a measurement of pressure with 27.71 inches of water column equal to one pound per square inch gauge.

⁵ The maximum pressure at which a pipeline may be operated as set forth in Part 192, § 192.619.

plastic gas main had been installed to replace the existing cast-iron main.

III. THE DEPARTMENT'S INVESTIGATION

A. Initial Actions and Observations

On April 6, 2005, at approximately 3:35 p.m., an investigator from the Division arrived at the site to assist another Division investigator who had arrived about a half hour earlier. They met with representatives from the Fire Department, KeySpan, Feeney Brothers Excavation Corporation ("Feeney"), Northeastern, an independent contractor who worked for Northeastern and several independent inspectors and investigators.

The front area of 96 The Fenway facing the street was cordoned off by the Boston Police Department to limit access to the building. In the alley behind the building, there were numerous Fire Department vehicles. Firefighters were making sure that all of the fires were extinguished. The investigators were cautioned to not enter the building, as its structural integrity had not yet been determined.

In the meantime, they met and interviewed Tom Carlson, a self employed contractor hired by Northeastern, who stated that either he or one of his employees was usually on campus every day. Mr. Carlson and two of his employees were in the basement of 96 The Fenway shortly before the Incident occurred. The Division investigators were able to gain access to the building after meeting with two Northeastern officials.

In the basement, they observed the existing gas service, the gas meter and the downstream piping leading into the boiler room. They also observed the new gas service from the three-inch steel valve and the piping going through a concrete wall (Exh. 10). This pipe ended with an open elbow in the meter room. All of the gas valves appeared to be in the "closed" position. One of the investigators took pictures of the scene, including the gas meter, piping, valves and the open-ended service pipe (Exh. 11).

A Feeney representative briefed the investigators on the construction work in the alley. There were two excavations in the alley. The first excavation, at the north end of the alley, was the location where the new main was tied into an existing plastic main. The old cast-iron main had been disconnected from the system (Exh 12).

The second excavation, located at the south end of the alley, was where the new main terminated (Exh. 13). This was the location where air was purged out of the new main as it was placed into gas service.

The investigators also interviewed Robert Moorehead, KeySpan Construction Manager,

who was conducting KeySpan's investigation. The investigators witnessed a pressure test of the new service to 96 The Fenway from downstream of the curb valve in the alley to the service valve in the basement. The active section of the service was leak tested with soap solution from the capped end at the curb valve to the connection at the main. There was no leakage during either test.

B. Feeney Brothers

On April 5, 2005, a Feeney crew completed the installation of about 300 feet of six-inch plastic low pressure main to replace a combination of six-inch diameter and four-inch diameter cast-iron main in the alley behind 96 The Fenway. The crew also installed a new three-inch plastic service into the basement of 96 The Fenway. The service ended with a steel valve with a steel blank flange bolted onto the outlet end. The crew also installed new plastic services into numbers 90, 102 and 112-114 The Fenway. At approximately 3:00 p.m. on April 5, the crew introduced compressed air into the new main and services to conduct a pressure test of these facilities. The test was conducted at 94 p.s.i.g. for 16 hours (Exh. 9, at 20). The pressure was released by a Feeney crew member at approximately 7:00 a.m. on April 6. The test indicated there were no leaks in the pipe. According to a Feeney crew member, the service valve in the basement of 96 The Fenway was in the open position during the pressure test (*id.*).

C. KeySpan

After the Feeney crew had completed the pressure test of the new facilities and released the air from the main, two KeySpan crews began to work at the site. The first crew's ("street crew") job was to connect the new main in the alley to a plastic main that was already in service in the north excavation. This job was accomplished. The street crew then began work to activate the new main and service at 96 The Fenway.

At the same time, a second KeySpan crew, consisting of two fitters, was working in the basement of 96 The Fenway installing the internal piping from the outlet of the new three-inch steel service valve to the meter. One of the fitters removed the blank flange on the outlet of the service valve in the basement. The crew then proceeded to extend the new service pipe from the valve several feet through a concrete wall in the basement to the vicinity of the gas meter. "This work . . . had not been completed before the Incident" (Exh.9, at 23). In fact, the end of the pipe was left open. The crew working in the basement left the building for lunch. They advised the street crew working in the alley that it could continue to work on the gas main (Exh. 6). The street crew proceeded to purge and gas up the main. Natural gas entered the basement through the service valve, which had been "inadvertently left in the open position" and the open-ended pipe (*id.*). An ignition occurred which resulted in an explosion (*id.*). After the Incident, a KeySpan employee entered the basement and closed the service valve on the new service as well as the valve to the existing service (Exh. 14 at 3).

KeySpan's procedure PURGE-5010: Purge and Gas-in of Mains and Service Lines dated 7/01/04 states the following (Exh 14 at 4):

B. SCOPE

- (1) 6. - When purging such a service line into service, the meter or riser valve shall be shut off and plugged or capped before the main is tapped out and gas enters the service line (refers to a three-inch service line less than 45 feet in length).

F. Main Purging Requirements Under Any Method

- (1) 1. Isolation b. - When purging into service, all valves that could supply natural gas and shut-off devices connected to the main shall be checked to ensure that they are in the closed position and readily operable.

G. Service Line Purging Requirements Under Any Method

- (1) 1. Isolation a. - All service line valves shall be checked to ensure they are in the closed position and readily operable.

On June 23, 2006, KeySpan amended Section C.3 of PURG-5010 to add the following language:

When mains are purged separately from services, the service line valve shall be closed and meter or riser valve shall be shut off, plugged or capped before the main is purged

(Exh. 15).

D. Occupants of 96 The Fenway(Kerr Hall)

Kerr Hall, at 96 The Fenway, is a Northeastern dormitory which houses between 110 - 130 students. A luncheon was being held in a dining room on the second floor at the time of the Incident. Reportedly, moments before the explosion occurred, one of the head chefs warned the faculty and students in the dining room that he smelled gas. The building occupants evacuated the premises after the Incident. Seven persons were injured and treated at local hospitals for broken bones, cuts and burns. One person remained in a hospital overnight (Exhs. 2, 3).

E. Thomas Carlson, Independent Contractor

The two Department investigators interviewed Thomas Carlson. He stated he is a

self-employed contractor working for Northeastern. He said that either he and/or his employees are usually on the campus every day. He told the investigators that he and two of his employees were in the basement of Kerr Hall (96 The Fenway) to perform an assigned task shortly before the explosion occurred. They felt very lucky to get out of the building.

When they went into the basement, he smelled a strong odor of gas. He told his men they had to get out of there. As they were leaving they walked by the gas meter, and he smelled a strong odor of gas, saw an open pipe and heard gas escaping. He made a noise similar to the sound of escaping gas (hissing sound). They observed several KeySpan employees outside the building. One was sitting in a pickup truck eating lunch so they thought maybe this was no big deal. About a minute or two later there was a big explosion. The force of the explosion hit them in their backs, and they were all shaken up.

He said he sent his men home for the day. Later, he showed the investigators where he observed the open gas pipe in the basement (Exh. 16).

F. The Fire Department

A Department investigator interviewed three Fire Department employees who were at the site on April 6, 2005 (Exh. 17). The first firefighter's job was to search, evacuate and monitor gas levels inside the building. His gas detector went into alarm mode, and his captain ordered a second firefighter and him to verify that the gas was shutoff in the basement. Upon entering the basement the first firefighter observed the gas meter. He also observed a new, open black metal pipe coming through a wall and not connected to anything (Exh. 18).

The first firefighter requested a wrench from a second KeySpan employee standing in the alley. This employee stated that the gas was shut off. After some confusion between the two KeySpan employees, the second KeySpan employee assured the firefighters that he had personally shutoff the service to the building (*id.*). The second firefighter verified the report given by the first firefighter (Exh. 19).

The third firefighter, a lieutenant, arrived with Engine 33 and proceeded to the rear of 96 The Fenway. He observed three KeySpan employees standing near their trucks in a dazed, confused and stunned appearance. They stated they were eating lunch in the truck when the explosion occurred. As they were speaking, a firefighter from Rescue 2 (firefighter #1) appeared at the door and asked for a wrench to turn off the gas. One of the KeySpan workers was adamant in his opinion and insisted that the gas had already been turned off and there was no gas in the building (Exh. 20).

G. Other Tests and Observations

Nine KeySpan employees and four Feeney employees, who were working on the main

and service at 96 The Fenway on April 6, 2005, were subjected to drug and alcohol tests after the Incident. Results of these tests were negative (Exh. 9 at 16). These employees are part of KeySpan's random drug testing pool. KeySpan did not drug test the employees who conducted leak surveys at 96 The Fenway and surrounding buildings after the Incident occurred.

49 C.F.R. § 199.11, Drug tests required, states in relevant part:

(b) Post-accident testing. As soon as possible but no later than 32 hours after an accident, an operator shall drug test each employee whose performance either contributed to the accident or cannot be completely discounted as a contributing factor to the accident, and

49 C.F.R. § 199.225 Alcohol tests required, states in relevant part:

(a) Post-accident. (1) As soon as practicable following an accident, each operator shall test each surviving covered employee for alcohol if that employee's performance of a covered function either contributed to the accident or cannot be completely discounted as a contributing factor to the accident.

Since there were no gas readings at any other locations, there was no reason to suspect that the main or service contributed to this Incident. KeySpan completely discounted the performance of the leak surveyors as a contributing factor to the Incident. This eliminated the leak surveyors from post-accident drug and alcohol testing.

IV. LEAKAGE SURVEYS AND MAINTENANCE ACTIVITIES

A. Leakage Surveys

Leakage surveys of gas mains and services are required by federal and state regulations, Part 192, § 192.723⁶ and 220 C.M.R. § 101.07.⁷ An operator generally employs

⁶ Leakage survey with leak detection equipment must be conducted outside business districts at intervals not exceeding five years. However, for cathodically unprotected distribution lines subject to Part 192, § 192.465(e) on which electrical surveys for corrosion are impractical, survey interval may not exceed three years.

⁷ Operators shall conduct leakage surveys over all service lines as frequently as experience and technology indicate are necessary, and in accordance with Part 192.

flame ionization detectors⁸ and combustible gas indicators to locate and quantify gas leakage. KeySpan conducted a walking survey the week of September 5, 2003 (Exh.14, at 5). A cast-iron winter patrol survey was performed on the main behind 96 The Fenway on March 11, 2005 (Exh. 9, at 12). KeySpan has no record of any leaks on this main or service line to 96 The Fenway over the past year (Exh. 9, at 5 and 6). KeySpan leak surveyed the following buildings after the Incident occurred: 90, 96, 102, 110, 114 Fenway and 129, 149, 153, 157, 163, 165, 171 and 175 Hemenway Street. No gas readings were obtained (Exh 9, at 8).

B. Maintenance and Replacement Activity

Other than the main replacement work that was ongoing at the time of the Incident, KeySpan had no record of any maintenance or replacement work performed on this main over the past year (Exh. 9, at 5). KeySpan has not located any record of prior entry into 96 The Fenway (Exh. 9, at 7).

KeySpan has no record of any prior leak survey of its interior piping nor any record of leak history or maintenance performed on customer owned piping or appliances (Exh 14, at 5). KeySpan provided no records of having inspected the interior service pipe that is exposed to the atmosphere for evidence of atmospheric corrosion (id.). The last meter change prior to the Incident was September 14, 1990 (id.).

V. TRAINING AND OPERATOR QUALIFICATION

KeySpan provided training records of the four employees in the crew that placed the new main into gas service on April 6, 2005 (Exh. 21). One of the crew members attended Basic Training in the Spring of 1996. The crew members attended a PCS (Provide Construction Service) Refresher Training class in April, 2000. All four attended Spring and Fall Training classes on a regular basis from May, 1999, through December, 2004 with the following exceptions. A review of the records indicated that two employees did not attend the Spring, 2001 class. Additionally, none of these employees attended a Fall Training class in 2003. One of the employees did not attend a Fall Training class in 2004. KeySpan has indicated that the Spring and Fall refresher training outlines for the period from 1999 to the date of the Incident do not specifically cover the topic of ensuring that all service valves are in the off position prior to activating mains (Exh. 21, at 1).

⁸ Flame Ionization Detector - An instrument that uses hydrogen fuel to power a small flame in a detector cell. A pump is used to pass continuous air samples through the cell. If a sample contains hydrocarbons such as gas, it will be burned or ionized in the hydrogen flame. It is accurate in the parts per million range.

KeySpan also provided training records of the two employees in the fitting crew who were working to extend the service in 96 The Fenway (Exh. 22). One employee attended PFR (Process Field Requests) Refresher Training in December, 2000. Both employees attended Spring and Fall Training in 2002.

Part 192, **Subpart N: Qualification of Pipeline Personnel** requires operators to have a qualification program for its employees who perform covered tasks on its pipeline system. Among other criteria, a covered task is an activity that is performed as an operations or maintenance task. KeySpan provided the operator qualification records for the employees involved in the work at 96 The Fenway (Exh. 23). All of the employees were originally certified by October 28, 2002. Street personnel were certified in forty five tasks. Each of the four crew members was certified in "Purging air from the new pipeline" (Task ID NGA-032). The street crew members were certified in Task ID NGA-048, "Extend or cut back on an existing service line". They were also re-certified in Task ID NGA-070, "Abnormal Operating Conditions/Properties of Natural Gas", in May or July, 2004. The two members of the fitting crew were certified in seventeen tasks. They were certified in Task ID NGA -041, "Inspect valves" and Task ID NGA-70 "Abnormal Operating Conditions/Properties of Natural Gas". According to KeySpan, Task ID NGA-048, Extend or cut back on an existing service line, is considered a distribution function. The fitters were not certified in this task.

VI. ODORIZATION

In accordance with 220 C.M.R. § 101.06(20), an operator must odorize the gas in its distribution system of sufficient intensity so that the gas is readily perceptible to the normal or average olfactory senses of a person coming from fresh, uncontaminated air into a closed room containing 0.15 percent gas in air. An operator must also conduct periodic sampling of the gas to assure the proper concentration of odorant throughout its system.

Tests were conducted by three different employees after the explosion at the following Boston locations:

1. 165B Hemenway St., 4/6/05 @ 2:45 p.m. - Odor level @ 0.06-0.09% gas in air
2. 103 Hemenway (Apt. 15), 4/6/05 @ 3:30 p.m. - Odor level @ 0.065- 0.01% gas in air

The odor detectability levels of gas in air after the Incident ranged from 0.06 to 0.01 percent gas in air, indicating that the odorant levels were within the prescribed state regulations (Exh. 9 at 14, Att. 6).

VII. FINDINGS AND CONCLUSIONS

A. Findings

1. A six-inch low pressure cast iron gas main was installed in the alley behind 96 The Fenway in 1913.
2. A three-inch bare steel service was installed to 96 The Fenway in 1926.
3. A Feeney crew installed a new six-inch low pressure plastic gas main in the alley behind 96 The Fenway to replace the existing cast-iron main.
4. The same Feeney crew installed a three-inch low pressure plastic gas service into the basement of 96 The Fenway to replace the existing gas service in the building.
5. The Feeney crew also installed plastic gas services into 90, 102 and 112-114 The Fenway.
6. Feeney installed blank flanges on the outlet ends of the four service valves to the new gas services.
7. The four valves were left in the open position for the pressure test of the new main and services.
8. KeySpan's Procedure, MAIN-5180: Pressure Testing Distribution Mains, Date 7/01/04, Section D. Test Pressures 1. states: "New service lines shall be tested up to the shut-off valve on the riser, or the inside shut-off valve". The procedure does not specifically state if the valve should be open or closed.
9. On April 5-6, 2005, Feeney conducted a successful pressure test of the new facilities at 94 p.s.i.g. for 16 hours to verify there were no leaks.
10. The test pressure was released at approximately 7:00 a.m. on April 6, 2005.
11. After the pressure test had been completed, a KeySpan crew worked in the alley to connect the new gas main and services to an existing plastic main and to abandon the cast-iron main.
12. After the new facilities were connected, the crew began work to activate the new main by purging it into service; (i.e. -admitting gas into the main).
13. The Incident Report stated that the fitting crew inadvertently left the valve on the service relay open and went to lunch. The (MSF - Maintain System Facilities) crew activated the main not knowing the valve was in the open position and that the blind flange had been removed.
14. KeySpan's Procedure CNST-5010: General Construction Requirements, dated 7/01/04, Procedure A. General 2. Training states: "Company personnel must be trained and qualified to perform the work covered in this document."
15. KeySpan's Procedure PURG-5010: Purge and Gas-in of Mains and Service Lines, dated 07/01/04, Section B. Scope 6., referring to a three-inch service less than 45 feet in length states: "When purging such a service line into service, the meter or riser valve shall be shut off and plugged or capped before the main is tapped out and gas enters the service line."

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16. KeySpan's Procedure PURG-5010: Purge and Gas-in of Mains and Service Lines, dated 07/01/04 Section F.1. Isolation b. states: When purging into service, all valves that could supply natural gas and shut-off devices connected to the main shall be checked to ensure that they are in the closed position and readily operable.
17. KeySpan's Procedure PURG-5010: Purge and Gas-in of Mains and Service Lines, dated 07/01/04 Section G. Service Line Purging Requirements Under Any Method Number 1. Isolation a.. states: "All service line valves shall be checked to ensure they are in the closed position and readily operable."
18. A second KeySpan crew, consisting of two fitters, worked in the basement of 96 The Fenway to extend new service pipe from the outlet of the service valve to the gas meter.
19. One of the fitters removed the blank flange from the service valve. They failed to close the service valve.
20. The fitters extended the service pipe from the service valve through a concrete wall into the meter room and installed an open-ended elbow in the service.
21. The crew working in the basement left the building for lunch before finishing the service line work. They advised the street crew working in the alley it could continue to work on the gas main.
22. The street crew proceeded to activate the main, and natural gas entered the basement of 96 The Fenway through the open service valve and the open-ended pipe. An ignition occurred which resulted in an explosion and fire.
23. A KeySpan employee entered the basement after the explosion and turned off the service valve.
24. On April 6, 2005, at 1:23 p.m., the Fire Department received notification of a fire at 96 The Fenway
25. The source of the gas leak was through the service valve, which had been inadvertently left in the open position and the open-ended pipe in the service.
26. The accumulation of gas in the basement of 96 The Fenway was the fuel for the Incident.
27. One of the head chefs warned persons in the dining room on the second floor he smelled gas moments before the explosion.
28. Emergency response personnel detected a strong odor of gas upon entering the building.
29. The Fire Department estimated that the Incident caused \$800,000 in property damage.
30. There were seven injuries as a result of the Incident.
31. KeySpan had conducted leakage surveys of the area during the year preceding the Incident and found no leaks in its system.
32. The gas odorant levels in KeySpan's distribution system at 96 The Fenway met regulatory requirements.
33. KeySpan has a dedicated program to train its employees and to ensure that its

employees are certified to perform covered tasks through its Operator Qualification program.

34. KeySpan certifies its distribution personnel, but not its fitting personnel, to extend or cut back on an existing service line in accordance with covered task NGA-048.
35. KeySpan indicated that it does not have any records of prior leak surveys of the interior service piping in 96 The Fenway.
36. KeySpan indicated that it does not have any records of prior inspections of the service pipe in 96 The Fenway that is exposed to the atmosphere for evidence of atmospheric corrosion.

B. Conclusions

KeySpan has methods in its Procedures to address the purge and gas-in to service of new mains and service lines. However, two crews working independently and concurrently at 96 The Fenway failed to adequately follow these procedures. The street crew, working to activate the new main, failed to ensure that all shut off devices connected to the main were in the closed position. This is required by KeySpan's procedures.

The fitting crew, working in the basement to connect the new service to the meter, did not close the service valve after it removed the blank flange at the valve outlet. When they went to lunch and notified the street crew that work could continue on the main, they had left the service valve in the basement open. This permitted gas to enter the basement of 96 The Fenway through the open-ended pipe when the main was purged into service. Something in the basement ignited the leaking gas and caused the subsequent explosion and fire. The Department has reason to believe that KeySpan failed to apply its own procedures to address the purge and gas-in to service of the new main and service at 96 The Fenway, and that failure was the primary cause of the Incident.

KeySpan has a dedicated program to train its employees and to ensure that its employees are certified to perform covered tasks through its Operator Qualification program. However, it appears that training may be deficient related to the position of and operation of valves prior to and during purging operations as well as extending service lines. KeySpan's training program for the fitting crews failed to adequately address the need and importance of verifying that valves connected to the system to be purged are shut off.

VIII. KEYSpan ACTIONS

On April 25, 2008, pursuant to G.L. c. 164, § 105A and 220 C.M.R. §§ 69.00 et seq., the Department concluded an enforcement action with KeySpan. KeySpan Energy Delivery, New England, D.T.E./D.P.U. 05-PL-19. KeySpan agreed to review and revise its purging

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procedures to include requirements to check all valves to prevent gas from flowing out of the segment to be purged. KeySpan also agreed to review and revise its procedures to ensure that its training and procedures for pipe fitters and service personnel include requirements for capping and purging all gas piping before leaving a work site.

APPENDIX - A

EXHIBITS

EXHIBITS

1. Boston Fire Department Incident Report- April 7, 2005
2. KeySpan Incident Report FORM PHMSA F 7100.1 - May 6, 2005
3. KeySpan DTE Incident Report - April 13, 2005
4. KeySpan Incident Report Form 1509 - September 7, 2005
5. DTE Incident Log Book - April 6, 2005
6. KeySpan Incident Investigation Report
7. KeySpan Service Card for 96 The Fenway
8. KeySpan Gas Main Record for 96 the Fenway
9. KeySpan Information Response IR- PL-1, June 14, 2005 @ #5
10. Photograph of Service Valve and New Service Pipe Inside 96 The Fenway
11. Photograph of Open End of New Service Pipe Inside 96 The Fenway
12. North Excavation Site and New 6-Inch Plastic Main
13. South Excavation Site and End of New Plastic Main
14. KeySpan Information Response IR -PL -2, September 15, 2005 @ #3
15. KeySpan Procedures for Purge and Gas-in of Mains and Services
16. Department Investigator's Field Notes, April 6, 2005
17. Department Investigator's Field Notes, May 8, 2005
18. Statement of firefighter Miller
19. Statement of firefighter Benevelli, May 11, 2005
20. Statement of Lieutenant Meyer, May 8, 2005
21. KeySpan Information Response IR - PL -4, May 25, 2006 @ Exhibit 5-1
22. Keyspan Information Response IR - PL- 4, May 25, 2006 @ Exhibit 5-1
23. KeySpan Information Response IR - PL- 3, February 24, 2006 @ #5, Exhibit B

EXHIBIT 1

**Boston Fire Department Incident Report
April 7, 2005**

A FDID 25035 State MA Incident Date 04/06/2005 Station 05-0018028 Incident Number 000 Exposure Change No Activity

B Property Details

B1 0020 Not Residential
Estimated Number of residential living units in building of origin whether or not all units became involved

B2 001 Buildings not involved
Number of buildings involved

B3 None
Acres burned (outside fires) Less than one acre

C On-Site Materials or Products None *Complete if there were any significant amounts of commercial, industrial, energy or agricultural products or materials on the property, whether or not they became involved*

Enter up to three codes. Check one or more boxes for each code entered.

On-site material (1)

On-site material (2)

On-site material (3)

1 Bulk storage or warehousing
2 Processing or manufacturing
3 Packaged goods for sale
4 Repair or service

1 Bulk storage or warehousing
2 Processing or manufacturing
3 Packaged goods for sale
4 Repair or service

1 Bulk storage or warehousing
2 Processing or manufacturing
3 Packaged goods for sale
4 Repair or service

D Ignition

D1 62 Heating room or area,
Area of fire origin *

D2 11 Spark, ember or flame
Heat source *

D3 51 Box, carton, bag,
Item first ignited * Check box if fire spread was confined to object of origin

D4 67 Paper, including
Type of material first ignited Required only if item first ignited code is 00 or <70

E1 Cause of Ignition

Check box if this is an exposure report. Skip to section G

1 Intentional
2 Unintentional
3 Failure of equipment or heat source
4 Act of nature
5 Cause under investigation
U Cause undetermined after investigation

E2 Factors Contributing To Ignition

23 Leak or break None
Factor Contributing To Ignition (1)

 None
Factor Contributing To Ignition (2)

E3 Human Factors Contributing To Ignition

Check all applicable boxes

1 Asleep None
2 Possibly impaired by alcohol or drugs
3 Unattended person
4 Possibly mental disabled
5 Physically Disabled
6 Multiple persons involved

7 Age was a factor
Estimated age of person involved

1 Male 2 Female

F1 Equipment Involved In Ignition

None If Equipment was not involved, skip to Section G

Equipment Involved

Brand

Model

Serial #

Year

F2 Equipment Power

Equipment Power Source

F3 Equipment Portability

1 Portable
2 Stationary

Portable equipment normally can be moved by one person, is designed to be use in multiple locations, and requires no tools to install.

G Fire Suppression Factors

Enter up to three codes. None

Fire suppression factor (1)

Fire suppression factor (2)

Fire suppression factor (3)

H1 Mobile Property Involved

None

1 Not involved in ignition, but burned
2 Involved in ignition, but did not burn
3 Involved in ignition and burned

Mobile property model

Year

Licence Plate Number, State, VIN number

H2 Mobile Property Type & Make

Mobile property type

Mobile property make

Local Use

Pre-Fire Plan Available
Some of the information presented in this report may be based upon reports from other Agencies

Arson report attached
 Police report attached
 Coroner report attached
 Other reports attached

NFIRS-2 Revision 01/19/99

L1 Structure Type
If fire was in enclosed building or a portable/mobile structure complete the rest of this form

1 Enclosed Building
 2 Portable/mobile structure
 3 Open structure
 4 Air supported structure
 5 Tent
 6 Open platform (a.g. piers)
 7 Underground structure (work areas)
 8 Connective structure (a.g. fences)
 9 Other type of structure

L2 Building Status

1 Under construction
 2 Occupied & operating
 3 Idle, not routinely used
 4 Under major renovation
 5 Vacant and secured
 6 Vacant and unsecured
 7 Being demolished
 8 Other
 9 Undetermined

Height
Count the ROOF as part of the highest story

006
Total number of stories at or above grade

001
Total number of stories below grade

Structure Fire

Total square feet: 002 , 400

OR

Length in feet: 040 BY Width in feet: 060

J1 Fire Origin *

001 Below Grade
Story of fire origin

J3 Number of Stories Damaged By Flame
Count the ROOF as part of the highest story

 Number of stories w/ minor damage (1 to 24% flame damage)
 Number of stories w/ significant damage (25 to 49% flame damage)
 Number of stories w/ heavy damage (50 to 74% flame damage)
 Number of stories w/ extreme damage (75 to 100% flame damage)

K Material Contributing Most To Flame Spread

Check if no flame spread OR aware as material first ignited OR unable to determine **Skip To Section L**

K1
Item contributing most to flame spread

K2
Type of material contributing most to flame spread **Required only if item contributing code is not next to**

J2 Fire Spread *

1 Confined to object of origin
 2 Confined to room of origin
 3 Confined to floor of origin
 4 Confined to building of origin
 5 Beyond building of origin

L1 Presence of Detectors *
(In area of the fire)

N None Present **Skip to section M**
 1 Present
 U Undetermined

L3 Detector Power Supply

1 Battery only
 2 Hardwire only
 3 Plug in
 4 Hardwire with battery
 5 Plug in with battery
 6 Mechanical
 7 Multiple detectors & power supplies
 8 Other
 U Undetermined

L5 Detector Effectiveness
Required if detector operated

1 Alerted Occupants, occupants responded
 2 Occupants failed to respond
 3 There were no occupants
 4 Failed to alert occupants
 U Undetermined

L2 Detector Type

1 Smoke
 2 Heat
 3 Combination smoke - heat
 4 Sprinkler, water flow detection
 5 More than 1 type present
 0 Other
 U Undetermined

L4 Detector Operation

1 Fire too small to activate
 2 Operated (Complete Section L5)
 3 Failed to Operate (Complete Section L6)
 U Undetermined

L6 Detector Failure Reason
Required if detector failed to operate

1 Power failure, shutoff or disconnect
 2 Improper installation or placement
 3 Defective
 4 Lack of maintenance, includes cleaning
 5 Battery missing or disconnected
 6 Battery discharged or dead
 0 Other
 U Undetermined

M1 Presence of Automatic Extinguishment System *

N None Present
 1 Present **Completes rest of Section M**

M3 Automatic Extinguishment System Operation
Required if fire was within designed range

1 Operated & effective (Go to M4)
 2 Operated & not effective (M4)
 3 Fire too small to activate
 4 Failed to operate (Go to M5)
 0 Other
 U Undetermined

M5 Automatic Extinguishment System Failure Reason
Required if system failed

1 System shut off
 2 Not enough agent discharged
 3 Agent discharged but did not reach fire
 4 Wrong type of system
 5 Fire not in area protected
 6 System components damaged
 7 Lack of maintenance
 8 Manual Intervention
 0 Other
 U Undetermined

M2 Type of Automatic Extinguishment System *
Required if fire was within designed range of AES

1 Wet pipe sprinkler
 2 Dry pipe sprinkler
 3 Other sprinkler system
 4 Dry chemical system
 5 Foam system
 6 Halogen type system
 7 Carbon dioxide (CO₂) system
 8 Other special hazard system
 U Undetermined

M4 Number of Sprinkler Heads Operating
Required if system operated

Number of sprinkler heads operating

EXHIBIT 2

**KeySpan Incident Report FORM F 7100.1
May 6, 2005**



KeySpan Energy Delivery
52 Second Avenue
Waltham, MA 02451
Tel 781 466-5137
Fax 781 290-4965
E-mail tteahan@keyspanenergy.com

Thomas R. Teehan
Senior Counsel

Via Facsimile
Confirmatory Copy by U.S. Mail

May 6, 2005

Office of Pipeline Safety
Information Resource Manager
DPS-13
407th Street, S.W.
Washington, DC 20590

Re: 96 Fenway, Boston, Massachusetts

Dear Sir/Madam:

Enclosed please find Incident Report-Gas Distribution System regarding the above-captioned matter.

Very truly yours,

A handwritten signature in black ink, appearing to read "T. Teehan", written over a horizontal line.

Thomas R. Teehan

TRT/dmo
Enclosure



U.S. Department of Transportation
Pipeline and Hazardous Materials Safety
Administration

INCIDENT REPORT - GAS DISTRIBUTION SYSTEM

Report Date _____
No. _____
(DOT Use Only)

INSTRUCTIONS

Important: Please read the separate instructions for completing this form before you begin. They clarify the information requested and provide specific examples. If you do not have a copy of the instructions, you can obtain one from the Office Of Pipeline Safety Web Page at <http://ops.dot.gov>.

PART A - GENERAL REPORT INFORMATION

Check: Original Report Supplemental Report Final Report

1. Operator Name and Address

- a. Operator's 5-digit Identification Number / 1 / 6 / 4 / 0 / 1 /
- b. If Operator does not own the pipeline, enter Owner's 5-digit Identification Number / / / / /
- c. Name of Operator Boston Gas Company d/b/a KeySpan Energy Delivery New England
- d. Operator street address 52 Second Avenue
- e. Operator address Waltham, Middlesex, Massachusetts 02451
City, County or Parish, State and Zip Code

2. Time and date of the incident:

1 / 4 / 3 / 6 / / 10 / 4 / / 10 / 6 / / 10 / 5 /
hr. month day year

3. Incident Location

- a. 96 Fenway
Street or nearest street or road
- b. Boston, Suffolk County
City and County or Parish
- c. Massachusetts
State and Zip Code
- d. Latitude: / / / / / Longitude: / / / / /
(if not available, see instructions for how to provide specific location)
- e. Class location description
 Class 1 Class 2 Class 3 Class 4
- f. Incident on Federal Land Yes No

4. Type of leak or rupture

- Leak: Pinhole Connection Failure (complete sec. F5)
 Puncture, diameter or cross section (inches) _____
- Rupture (if applicable):
 Circumferential - Separation
 Longitudinal
- Tear/Crack, length (inches) _____
- Propagation Length, total, both sides (feet) _____
- NA
- Other: release of gas inside building

5. Consequences (check and complete all that apply)

- a. Fatality Total number of people: / / / /
- Employees: / / / / General Public: / / / /
- Non-employee Contractors: / / / /
- b. Injury requiring inpatient hospitalization
Total number of people: / / / /
- Employees: / / / / General Public: / / / /
- Non-employee Contractors: / / / /
- c. Property damage/loss (estimated) Total \$ in excess of \$50,000. The Company is awaiting damage estimate from building owner.

Gas loss \$ _____ Operator damage \$ _____
Public/private property damage \$ _____

- d. Gas ignited Explosion No Explosion
- e. Gas did not ignite Explosion No Explosion
- f. Evacuation (general public only) / / / / Unknown people
Evacuation Reason:
 Unknown
 Emergency worker or public official ordered, precautionary
 Threat to the public
 Company policy

6. Elapsed time until area was made safe:

/ / / hr. approximately / 1 / 0 / min.

7. Telephone Report

1715141917131 / 0141 / 1061 / 1051
NRC Report Number month day year

8. a. Estimated pressure at point and time of incident:

_____ PSIG

b. Max. allowable operating pressure (MAOP): _____ PSIG

c. MAOP established by:

- Test Pressure _____ psig
- 49 CFR §.192. 619 (a)(3)

PART B - PREPARER AND AUTHORIZED SIGNATURE

Thomas R. Jordan, Sr. Counsel
(type or print) Preparer's Name and Title

781-466-5137
Area Code and Telephone Number

781-290-4965
Area Code and Facsimile Number

Preparer's E-mail Address

TRJordan
Authorized Signature

(type or print) Name and Title

5/6/05
Date

781-466-5137
Area Code and Telephone Number

F5 - MATERIAL OR WELDS

Material

- 14. Body of Pipe ⇒ Dent Gouge Wrinkle Bend Arc Burn Other: _____
- 15. Component ⇒ Valve Fitting Vessel Extruded Outlet Other: _____
- 16. Joint ⇒ Gasket O-Ring Threads Fusion Other: _____

Weld

- 17. Butt ⇒ Pipe Fabrication Other: _____
- 18. Fillet ⇒ Branch Hot Tap Fitting Repair Sleeve Other: _____
- 19. Pipe Seam ⇒ LF ERW DSAW _____ nless Flash Weld
- HF ERW SAW _____ spiral Other: _____

Complete a-f if you indicate any cause in part F5.

a. Type of failure:

- Construction Defect ⇒ Poor Workmanship Procedure not followed Poor Construction Procedures
- Material Defect

b. Was failure due to pipe damage sustained in transportation to the construction or fabrication site? Yes No

c. Was part which leaked pressure tested before incident occurred? Yes, complete d-f, if known No

d. Date of test: / / mo. / / day / / yr.

e. Time held at test pressure: / / hr.

f. Estimated test pressure at point of incident: _____ PSIG

F6 - EQUIPMENT OR OPERATIONS

- 20. Malfunction of Control/Relief Equipment ⇒ Valve Instrumentation Pressure Regulator Other: _____
- 21. Threads Stripped, Broken Pipe Coupling ⇒ Nipples Valve Threads Mechanical Couplings Other: _____
- 22. Leaking Seals

23. Incorrect Operation

a. Type: Inadequate Procedures Inadequate Safety Practices Failure to Follow Procedures Other: _____

b. Number of employees involved in incident who failed post-incident drug test: / / / Alcohol test: / / /

c. Was person involved in incident qualified per OQ rule? Yes No d. Hours on duty for person involved: / / /

F7 - OTHER

24. Miscellaneous, describe: Release of gas. A Company crew was activating a gas main and service at 96 Fenway, Boston, MA. A second crew had been working in the basement of the building, installing the internal piping for the service while the other crew worked on the gas main in the street. This incident is still under investigation.

25. Unknown

- Investigation Complete Still Under Investigation (submit a supplemental report when investigation is complete)

PART G - NARRATIVE DESCRIPTION OF FACTORS CONTRIBUTING TO THE EVENT (Attach additional sheets as necessary)

EXHIBIT 3

**KeySpan DTE Incident Report
April 13, 2005**



DTE INCIDENT REPORT

TODAY'S DATE: April 13, 2005
DATE OF INCIDENT: April 6, 2005

Mr. Christopher Bourne
 Department of Telecommunications and Energy
 Pipeline Safety and Engineering Division
 One South Station
 Boston, MA 02110

INCIDENT LOCATION	TYPE OF INCIDENT	# PEOPLE AFFECTED	DATE/TIME CALLED	DOT NOTIFIED
Kerr Hall Northeastern University 96 Fenway Boston, MA	Release of Gas X	Number undetermined. Students in three dorm buildings were evacuated.	To Dispatch: 13:30	Yes <u>X</u>
	Outage: X			Time <u>14:36</u>
	Evacuation: X		To DTE: 14:16	No.: 754973

PROBABLE CAUSE: Release of natural gas at location. Investigation is still on-going.

INJURIES REPORTED: Undetermined. Seven individuals were reportedly treated for minor injuries.

PERSON(S) INJURED	TYPE OF EMERGENCY CARE
Seven following individuals were reported to have sustained minor injuries: Christopher Covell, Marta Araujo, Peter Duncan, Bethany Quigley, Heather Johnson, Carry Beisenger, and Thomas Cullinane.	The types of injury are unknown. Six individuals were reported to have been treated and released. The seventh reportedly remained at a hospital overnight.

PROPERTY DAMAGES:

LOCATION OF DAMAGE	TYPE OF DAMAGE
The basement first and second floors of 96 Fenway	Structural

TOTAL DURATION EVACUATION: Students residing at Kerr Hall were provided alternative, on-campus living arrangements.

TOTAL DURATION OUTAGE: Gas service to Kerr Hall has been turned off pending repairs to building. The evacuation of the other two buildings lasted no more than two hours.

EVACUATED BY:
 FIRE DEPT. _____
 POLICE _____
 SELF _____
 KEYSPAN _____

 KEYSPAN ENERGY DELIVERY NEW ENGLAND
 LEGAL SERVICES
 (781) 466-5137

EXHIBIT 4

KeySpan Incident Report Form 1509
September 7, 2005

STREET & NO. <i>96 Fenway</i>		CITY & ZIP <i>Boston</i>		DATE & TIME OF INCIDENT <i>13:06</i>		NO. OF APT. IN BLDG. <i>01KPAW</i>	
OWNER'S NAME <i>Northeastern Univ</i>			OWNER'S ADDRESS <i>96 Fenway</i>				
NAME		SUITE	GAS FIRST SMELLED AM PM	GAS CO. NOTIFIED AM PM		WHERE WAS INJURED TAKEN?	
HOME ADDRESS <i>Extend of 129 Granite St. Malden</i>			IF MEDICAL AID, BY WHOM?				
INJURIES CLAIMED <i>See DTG (wound report April 13 2005)</i>							
NAME		SUITE	GAS FIRST SMELLED AM PM	GAS CO. NOTIFIED AM PM		WHERE WAS INJURED TAKEN?	
HOME ADDRESS			IF MEDICAL AID, BY WHOM?				
INJURIES CLAIMED							
STATEMENTS MADE BY OTHERS							

F 1509 REV. 72

PROPERTY DAMAGE (FULL DESCRIPTION)
Damage to entire building

DESCRIPTION OF INCIDENT
Fitting crew inadvertently left valves on service relay open and went to lunch. Crew (MSF) activated main not knowing the valve was in open position

STATEMENT OF EMPLOYEE
See Above

INCIDENT REPORT				
WITNESSES		ADDRESS	DATE <i>9/7/05</i>	TIME AM PM
NAME <i>R. Moorehead</i>		ADDRESS <i>129 Granite St. Malden, MA</i>	SIGNED <i>R. Moorehead</i>	

EXHIBIT 5

**DTE Incident Log Book
April 6, 2005**

APRIL

6

WEDNESDAY

2005 96th day - 269 days follow

9:30 Keyspan Shawn Ward.

Keyspan received a call at 8:37 from
123 main street, Weymouth - odor of gas.

They arrived at 8:53 and evacuated one person.
They found a 1% read of gas in the basement
atmosphere - Basement was made safe and
the person was back in at 9:25. Cause not
known at this time - will call back DH

2:10 pm Chris called Keyspan Shawn Ward - ^{Heard} that there

1:30pm There was an explosion at Kerr Hall,
a dorm at Northeastern University, 96 Fenway.

There was a crew working on a service
line. Someone may have turned the gas back
on prematurely. Two Northeastern employees
may have been injured. The building has
been evacuated and the area made safe.

Angela Motley and Ron Danielson are on
their way to the scene. CB/DH

EXHIBIT 6

KeySpan Incident Investigation Report

INCIDENT INVESTIGATION REPORT

KeySpan Energy Delivery New England Field Operations

Location of Incident: 96 Fenway, Boston, Massachusetts

Date of Incident: April 6, 2005

Work Scope: KeySpan Energy Delivery New England was in the process of relaying the existing four inch cast iron main with six inch plastic main. The replacement was required due to a pre-cast iron encroachment work request that was the result of the Boston Water and Sewer Company's plan to replace the existing sewer main. KED was in the process of transferring the old services and main to the new main and services on April 6, 2005.

DESCRIPTION OF INCIDENT:

- On April 6, 2005, a KeySpan work crew was activating the gas main and service at 96 Fenway, Boston, Massachusetts. A second company crew was working in the basement of 96 Fenway installing the internal piping for the service while the other crew worked on the gas main in the street. The crew working in the basement left the building for lunch, but advised the crew working in the street they could continue their work on the gas main. The street crew proceeded to activate the main and natural gas entered the basement of 96 Fenway through the service valve, which had been inadvertently left in the open position. An ignition occurred which resulted in an explosion. After the incident, a KeySpan employee entered the building and closed the service valve.

Recommendation:

- As a result of its investigation into this incident, KeySpan has reviewed its internal procedures and will strengthen the applicable work procedures. In addition, KeySpan Energy Delivery will communicate its findings to employees at its Safety and Operations meetings, safety tailgate meetings and lessons learned sessions. KeySpan has taken appropriate action with respect to its employees.

EXHIBIT 7

KeySpan Service Card for 96 The Fenway

SERVICE CARD

NO. 96 FENWAY

BY. (CITY) BOS.

SERVICE FROM

BY.

SIZE SERVICE <u>3"</u>	SIZE GATE <u>3"</u>	SIZE DRIP	PERMIT NO.
------------------------	---------------------	-----------	------------

NEW	DATE LAID <u>8-18-26</u>	MAIN TO L. L. <u>-</u>	L. L. TO END <u>16'</u>
-----	--------------------------	------------------------	-------------------------

MAIN DATA	SIZE	DEPTH	TAP SIZE	PRESSURE	CONDITION OF MAIN		
	<u>6"</u>	<u>4'-2"</u>	<u>6x3"TEE</u>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>LOW</td></tr> <tr><td>INT.</td></tr> <tr><td>HIGH</td></tr> </table>		LOW	INT.
LOW							
INT.							
HIGH							

ROADWAY

SIDEWALK

FEET ALLOWED

ESTIMATE

FOREMAN

NO. & ORDER NO.

REMARKS: _____

IMPORTANT—SKETCH OF THIS SERVICE MUST BE DRAWN ON BACK OF THIS CARD.

M. & S. REC.	GEN. ACCT.	PREM. REC.	DRAFTING	FILE
--------------	------------	------------	----------	------

FORM NO. 245

EXHIBIT 8

KeySpan Gas Main Record for 96 The Fenway

FENWAY ST

FENWAY

90

96

102

104

217.5' TO DRIP

8" C.L.P. 1978

1" C.L.P. 1978

5.5'

6'

3' CI

165

112-114

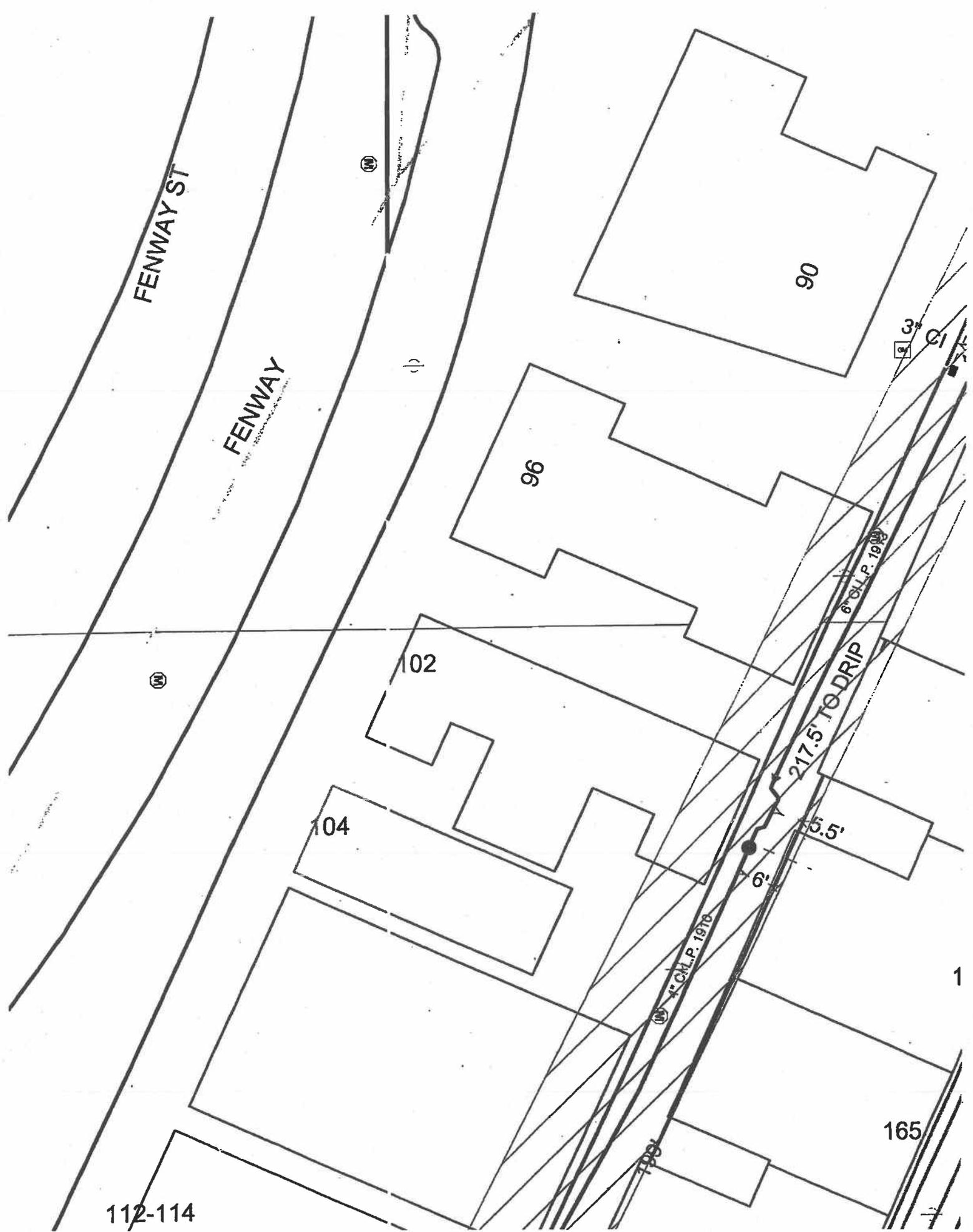


EXHIBIT 9

MAOP and History of Main Servicing 96 The Fenway



KeySpan Energy Delivery
52 Second Avenue
Waltham, MA 02451
Tel 781 466-5137
Fax 781 290-4965
E-mail tteehan@keyspanenergy.com

June 14, 2005

Thomas R. Teehan
Senior Counsel

Angela Motley, Public Utilities Engineer
Dept. of Telecommunications and Energy
One South Station
Boston, MA 02110

Re: 96 Fenway, Boston, Massachusetts

Dear Ms. Motley:

The following responses are being provided pursuant to your letter of April 19, 2005 regarding the above-captioned incident:

1. Sequence of events and description of the incident.

Response: Please see attached Incident Investigation Report. (Attachment 1)

2. Statements from KeySpan supervisory personnel who responded to the emergency.

Response: Please see attached Incident Investigation Report (Attachment 1), which summarizes the results of KeySpan's internal review of this incident.

3. Statements from KeySpan personnel onsite during the incident, including but not limited to fitters and construction crews. Also, include information pertaining to what the employees were doing prior to and at the time of the explosion.

Response: Please see attached Incident Investigation Report (Attachment 1), which summarizes the results of KeySpan's internal review of this incident.

4. Statements from persons who witnessed the explosion.

Response: Please see attached Incident Investigation Report (Attachment 1), which summarizes the results of KeySpan's internal investigation of this incident. In addition, please see response to Request No. 20 for information provided by Feeney Brothers' employees.

5. Records for cast iron main servicing 96 Fenway, including but not limited to, installation date, MAOP, leak history (over the last year) and operating pressure at the time of the incident. Description of any maintenance or replacement work performed on the cast iron main within the last year.

Response: The 6-inch cast iron main was installed in 1913. The MAOP for that main was 14 inches water column. The approximate operating pressure based on engineering models was 8.5 inches water column. Other than the main replacement work that was ongoing at the time of the incident, there is no record of any leaks, maintenance or replacement work performed on this main over the past year.

6. Records for service line to 96 Fenway, including but not limited to: installation date, line size and material, number of meters, leak history and maintenance. Description of any leak history or maintenance performed on customer owned piping or appliances. Please list known appliances at that address.

Response: Attached is Service Pipe Detail (Attachment 2) and service card (Attachment 3) indicating a 3-inch bare steel service line installed on 2/1/26. There was one meter at the location. There is no record of any leaks on this service line. KeySpan has no record of any leak history or maintenance performed on the customer-owned piping or appliances. KeySpan is aware of the following appliances at that address: hot water heater, two boilers, Cook Line grill, Vulcan fryer, Vulcan double convection oven, second oven, Vulcan 6-burner range with oven, and 6 laundry-room dryers

7. Date and record of last entry into 96 Fenway, prior to the incident. Please state disposition of the visit.

Response: KeySpan has not located any record of prior entry into 96 Fenway.

8. Listing of buildings surveyed by the Service Department at the night of the incident. Specify locations in which natural gas was detected.

Response: 90 Fenway, 102 Fenway, 96 Fenway, 110 Fenway, 114 Fenway, 175 Fenway, 129 Hemenway, 149 Hemenway 153 Hemenway, 157 Hemenway, 163 Hemenway, 165 Hemenway, 171 Hemenway, and 175 Hemenway. No natural gas readings were obtained.

9. Extent of damage caused by the explosion and a dollar estimate with support documentation.

Response: The fire department estimated damage at \$500,000. Otherwise, ResSpan has not received an estimate from Northeastern University.

10. Map of the area showing the location of the gas main and services in the alleyway behind 96 Fenway.

Response: Please see attached map. (Attachment 4)

11. Copy of the U.S. Department of Transportation incident reporting form.

Response: Please see attached DOT incident report. (Attachment 5)

12. Date and results of the last leakage survey in the area.

Response: On March 11, 2005, a cast iron winter patrol was performed on the main behind 96 Fenway. No leaks were detected.

13. Results of leakage surveys conducted after the explosion.

Response: Please see response to No. 8, above. Additionally, the alleyway between Fenway and Hemenway Street was surveyed with a portable F.I. and no gas was detected.

14. Odorant level readings taken in the area of 96 Fenway after the incident.

Response: Distinct odor level tests were taken at 165B Hemenway Street and 103 Hemenway Street (Apt. 15), on either side of the incident. The results of those tests are described in Attachment 6.

15. Copies of any post accident reports prepared by KeySpan including a copy of the Incident Reporting Form -- 1509.

Response: Please see copy of Incident Reporting Form 1509 (Attachment 7) and Incident Report (Attachment 1) and DOT report (Attachment 5).

16. Were any KeySpan employees and/or contractors drug or alcohol tested after the incident? If yes, who was tested and what were the results of the test?

Response: Yes. The following KeySpan employees were tested, with all tests being negative: Mark A. Tracey, Robert J. Porter, Robert Gibbons, Brian Condon, John Flaherty, Chris Covell, Leonard Sorenso, Jr., Andrew W. Cross, Michael Floyd. All four Feeney employees at the site, Steve Cassidy, Gary Henry, Paul Malloy, and Roger Gonsalves, were also tested, with negative results.

17. How many Northeastern University students had to be relocated as a result of the explosion?

Response: Approximately 110.

18. How many people were injured as a result of the explosion? Provide a list of the injured parties including KeySpan personnel. Please provide the status of those individuals.

Response: KeySpan is aware of seven individuals, whose names are listed on Incident Report Form 1509 (Attachment 7).

19. Provide a description of the main replacement project, including the activities taking place the day of the incident by Feeney Brothers. Specific to the pressure test conducted by Feeney Brothers, include a description of the test pressure, the test medium, duration of the test, including start and end times. Provide the time the test pressure was released from the new main and services and at what location(s) was the pressure released.

Response: KeySpan Energy Delivery New England was in the process of relaying the existing four-inch cast-iron main with six-inch plastic main. This replacement was called for by a cast iron encroachment work-request resulting from Boston Water and Sewer Company's plan to replace the existing sewer main. Feeney Brothers had installed the new main and service line to 96 Fenway. The service line had been tested by Feeney Brothers on April 5-6, 2005. The testing medium was air.

20. Provide names and statements from the Feeney Brothers contracting crew who were on site the day of the incident and at the time of the incident.

Response: Feeney Brothers employees were Steve Cassidy, Gary Henry, Paul Malloy, and Roger Gonsalves. Cassidy and Henry were carrying anodes to the trench when they heard a loud bang. Malloy was in the backhoe when he heard the loud noise, and Mr. Gonsalves was parking a truck when he heard a loud noise. The main relay and the four service relays were tested at the same time at 94 lbs. for 16 hours. The test was started on the night of April 5 and released on the morning of April 6. Mr. Cassidy said that the valve was in the open position and that blank flanges were installed on all four services before they were tested.

21. Did Feeney Brothers install a blank flange on the end of the new service valve in the basement of 96 Fenway? If so, was this flange in place during and after the pressure test?

Response: Yes.

22. Provide a description of the procedure used to purge the new facilities into gas service. At what location(s) was gas released into the atmosphere? Include a time line as to when the work was performed.

Response: A two-inch stack was installed at the end of the main and grounded. Purge gas was introduced by releasing a squeeze-off tool. The purge was begun at about 1:05 PM and completed at about 1:15 PM.

23. Provide a description of the KeySpan fitters' activities to extend the new service pipe in 96 Fenway, from the three-inch valve to the gas meter. When did this work begin? What were the individuals doing at the time of the incident?

Response: The fitters were in the process of tying over new gas service to the existing meter assembly. This work began on the morning of April 6, 2005 but had not been completed before the incident. At the time of the incident, the fitters were on their lunch break.

24. Provide the name(s) of the person who operated the new service valve to 96 Fenway, prior to and after the incident? Provide an explanation as to why it was operated and then left in the open position.

Response: The valve is not believed to have been operated prior to the incident. After the incident, a KeySpan Fitter, Mark Tracey, turned the valve off.

25. Does KeySpan have knowledge of anyone working on customer piping at 96 Fenway prior to the incident?

Response: No.

Very truly yours,



Thomas R. Teehan

TRT/dmo
Enclosure



**Inter-office Memo
Instrumentation & Regulation NE**

To: File
From: John Barrett
Date: April 6, 2005
Subject: 96 Fenway Street, Boston

On April 6, 2005 at approximately 2:00 p.m. John Talbot, Instrumentation and Regulation Supervisor, was notified of a possible gas related incident at 96 Fenway Street, Boston. John Talbot, John Orlando (Instrumentation & Regulation Engineer) and Rick Healey (Instrumentation & Regulation Control Technician) met at the site. Distinct Odor Level tests were conducted at 165B Hemenway Street, Boston and 103 Hemenway Street (Apt. 15), Boston. These buildings are located on either side of the incident, in close proximity.

The results of these tests are listed below:

Date	Time	Location	Threshold Odor Level (% Gas in Air)	Distinct Odor Level (% Gas in Air)	Test Equip. ID	Test Equip. Calibration Date	Test By
4/6/05	2:45 p.m.	165B Hemenway St Boston	0.050	0.090	2127-3	4/26/04	J.T.
			0.060	0.070	2127-3	4/26/04	J.O.
			0.050	0.060	2127-3	4/26/04	R.H.
4/6/05	3:30 p.m.	103 Hemenway St., (Apt. 15) Boston	0.065	0.100	2127-3	4/26/04	J.T.
			0.040	0.070	2127-3	4/26/04	J.O.
			0.050	0.065	2127-3	4/26/04	R.H.

cc: S. Allgor
W. Kildare
T. Vigeant

EXHIBIT 10

**Photograph of Service Valve and New Service Pipe Inside
96 The Fenway**



EXHIBIT 11

**Photograph of Open End of New Service Pipe Inside
96 The Fenway**

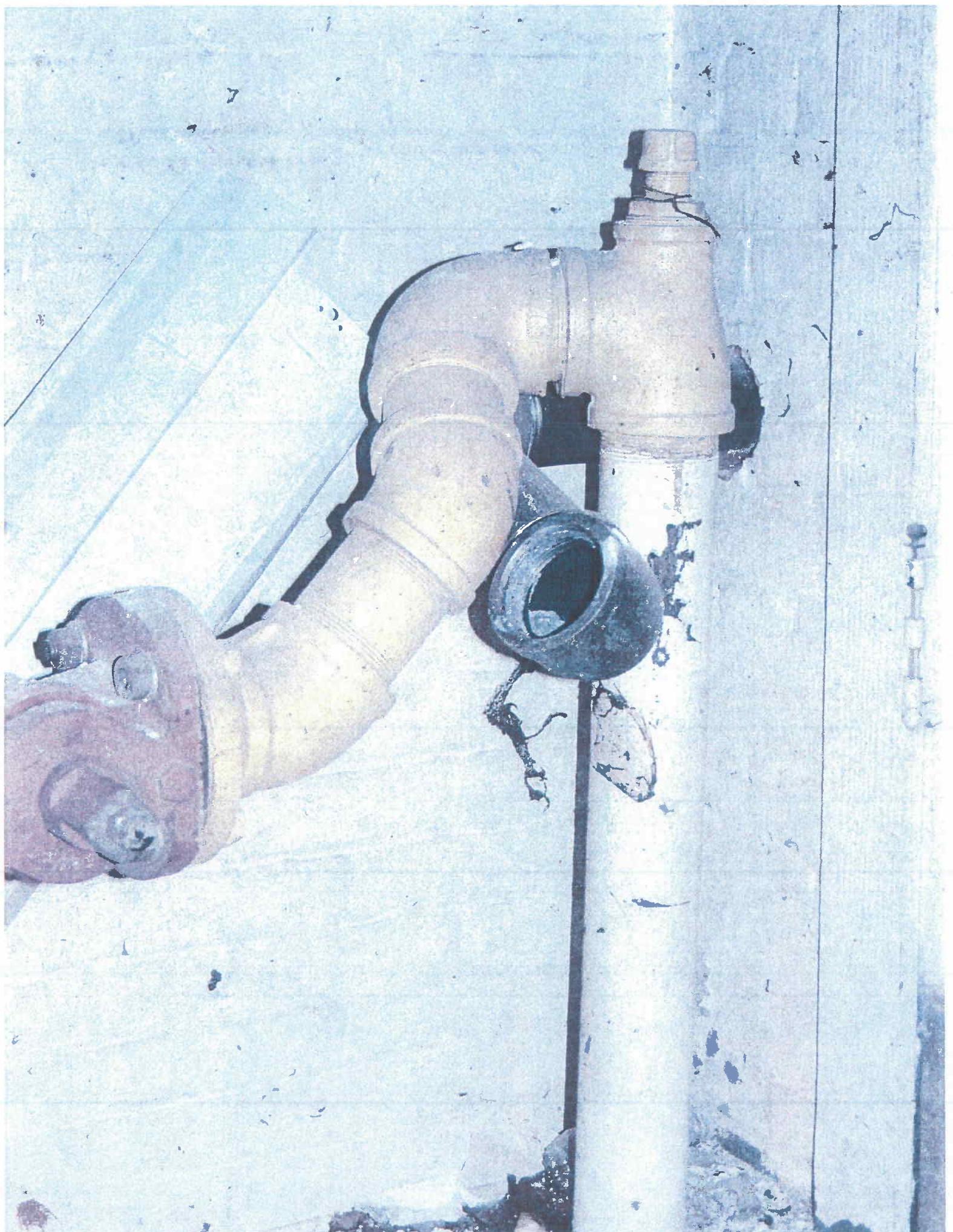


EXHIBIT 12

**North Excavation Site and New 6-Inch
Plastic Main**



EXHIBIT 13

**South Excavation Site and End
Of New Plastic Main**



EXHIBIT 14

Statements From KeySpan Employees



Hand Delivered

KeySpan Energy Delivery
52 Second Avenue
Waltham, MA 02451
Tel 781 466-5137
Fax 781 290-4965
E-mail tteehan@keyspaneenergy.com

September 15, 2005

Thomas R. Teehan
Senior Counsel

Ronald P. Danielson, P.E.
Dept. of Telecommunications and Energy
One South Station
Boston, MA 02110

Re: 96 Fenway, Boston, Massachusetts

Dear Mr. Danielson:

The following responses are being provided pursuant to your letter of August 1, 2005 regarding the above-captioned incident:

1. With respect to IR-1, Question 1, KeySpan listed a number of recommendations it would implement as a result of this Incident. Please provide documentation of its review of its internal procedures and the steps taken to strengthen the applicable work procedures. Also, please document communications to employees relative to its findings about the Incident at its Safety and Operations meetings, safety tailgate meetings, and lessons learned sessions.

Response: KeySpan's field supervisors have conducted regular Safety and Operations and safety tailgate meetings with field crews in which they emphasized the importance of ensuring that all service valves are in the off position prior to activating gas mains. This topic was covered in the spring training sessions with all field personnel. KeySpan is also reviewing modification of its Operating and Maintenance Manual ("O & M") to require that all valves must be closed gas tight with a threaded plug or cap immediately after installation and shall be left closed until the gas equipment is connected thereto. KeySpan will communicate any updates to its O & M to all field personnel through Safety and Operations meetings and safety tailgate meetings.

2. With respect to IR-1, Question 2, please provide statements from KeySpan supervisory personnel who responded to the Incident.

Response: Please see attached statement of William Henry, dated April 13, 2005. (Attachment 1)

3. With respect to IR-1, Question 3, please provide statements from KeySpan personnel who were onsite during the Incident, including but not limited to fitters and construction crews.

Response: KeySpan supervisory personnel interviewed employees who were onsite during the incident. Below is a summary of these interviews:

PCS Crew: This crew consisted of the following individuals: Armida Armstrong, Leonard Sorenson, Andrew Cross and Joseph McKinney. Mr. McKinney and Mr. Sorenson were stationed in the trench by the squeeze off tool at the time of the incident. Mr. Cross and Ms. Armstrong were located in the trench by the purge point at the time of the incident. Mr. Cross stated that he told both of KeySpan's fitters (Porter and Tracey) around 10:00 a.m. that they would be gassing up the new main around noon. This timeframe got pushed back because the cafeteria was in use. Mr. Mckinney said that at approximately 12:30 p.m., the fitters told him that they were going to lunch with Mr. Tracey stating, "We're going to lunch, do what you have to do." Prior to the incident, Mr. Cross radioed to Joe McKinney to start the purge. After he got three readings of 100% gas on his CGI machine, Mr. Cross proceeded to shut down the purge stack. Ms. Armstrong stated that when the purge was completed she turned the compressor on and heard a loud bang. Thinking the noise had come from the compressor, she shut the compressor off. None of these employees entered 96 Fenway after the incident.

John Flaherty-PFR: Mr. Flaherty was changing meters at 114 Fenway at the time of the incident. He stated that he heard a bang around 1:00 p.m.

Feeney Crew: This crew consisted of Steve Cassidy, Gary Henry, Paul Malloy and Roger Gonsalves. At the time of the incident, Mr. Cassidy and Mr. Henry were carrying anodes to the trench when they heard a loud bang. Mr. Malloy was in the backhoe when he heard the loud noise, and Mr. Gonsalves was parking a truck when he heard a loud noise. Mr. Cassidy said that the main relay and 4 service relays were tested at 94 lbs for 16 hours. The test was put on the night before and was released the morning of April 6, 2005. The valves on the service relays were in the open position and a blank flange was installed on top of all 4 services before the pressure test was performed. At around 12:30 p.m., Steve Cassidy went to 96 Fenway and confirmed with the Assistant Chef that they were all set in the kitchen, which he reported back to the tie-in hole. No member of this crew entered 96 Fenway after the incident.

Robert Gibbons and Brian Condon (Fitters): Gibbons and Condon were working at 114 Fenway and had no involvement with the Incident.

Robert Porter and Mark Tracey (Fitters): Porter and Tracey both stated that at the time of the incident they were eating lunch in their truck when they heard a loud bang and saw dust and smoke coming from 96 Fenway. Mr. Porter

stated that when he arrived at 96 Fenway, he was informed by the PCS crew that the new main was dead and would not be gassed up until 12:30 p.m. Mr. Porter stated that he took off the blank flange from the 3-inch service and started prepping the new fit for the tie over. He further stated that they ran 3 feet of new pipe before they left the building. Mr. Porter stated that he thought he had shut the valve off on the new 3-inch service. Mr. Porter also said that he and Mr. Tracey left 96 Fenway at approximately 11:15 a.m. and went to 90 Fenway to install an insulating kit and to tie in the outside riser of the new service. After completing the work at 90 Fenway, they walked to the end of the alley and told Robert Gibbons and Brian Condon that they were going to lunch. Mr. Porter stated that at about 12:45 p.m., he and Mr. Tracey saw Armida Armstrong and Andy Cross walk by with what they assumed was the squeeze-off tool. They heard the compressor turn on, and they heard a loud explosion. Mr. Porter stated that after the Incident Mr. Tracey went into 96 Fenway and shut off the valve to the new 3-inch service and also shut off the valve to the existing gas service.

4. With respect to IR-1, Question 4, please provide statements from persons who witnessed the explosion.

Response: Other than those provided in Response to No. 3 above, there are none. KeySpan was not permitted to interview Northeastern's workers or subcontractors.

5. With respect to IR-1, Question 7, KeySpan stated it has not located any record of prior entry into 96 Fenway. Does KeySpan have any records of prior leakage surveys of the interior piping, inspections of piping exposed to the atmosphere and records of past meter changes at 96 Fenway? If so, please provide copies of all records.

Response: KeySpan records reflect that a walking survey was performed the week of 9/5/03. KeySpan does not have any record of prior leak survey of interior piping at 96 Fenway, Boston, MA. KeySpan last meter change prior to the incident was on September 14, 1990.

6. With respect to IR-1, Question 15, please provide a copy of Incident Report-Form 1509 as described in Appendix B of the KeySpan Emergency Plan, pages B-31 through B-33, Rev. January 2000.

Response: See attached Incident Form 1509. (Attachment 2)

7. With respect to IR-1, Question 19, please provide the start and end times of the pressure test of the new main and services. Also, provide the time and location where the test pressure was released and by whom.

Response: Air test was on for 16 hours at 92 lbs. commencing at approximately 3:00 p.m. on April 5, 2005 and ending at approximately 7:00 a.m. on April 6, 2005. The pressure test was released by Steve Cassidy, an employee of Feeney Brothers at 96 Fenway, Boston, Massachusetts.

8. With respect to IR-1, Question 22, please provide a copy of the documentation of the purge check list and the purge procedures.

Response: Please see attached copy of the Purge Checklist (Attachment 3) and KeySpan's purge procedure (PURG-5010) (Attachment 4) from its Operating and Maintenance Manual ("O & M).

9. Please provide a list of names of all employees (KeySpan and contractor) who were working at the site at the time of the Incident. Please include their respective responsibilities.

Response:

KeySpan PCS Crew: This crew consisted of the following individuals: Armida Armstrong, Leonard Sorenson, Andrew Cross and Joseph McKinney: The PCS crew was on site to activate a new gas main and the service to 96 Fenway, Boston, MA.

Feeney Brothers Crew: This crew consisted of Steve Cassidy, Gary Henry, Paul Malloy, and Roger Gonsalves. This crew had installed the new main and services for the job and was onsite to back fill the trench and clean up the worksite.

John Flaherty-KeySpan PFR: Mr. Flaherty was working at 114 Fenway changing meters at the time of the incident. He stated that he heard a bang around 1:00 p.m.

Robert Porter and Mark Tracey—KeySpan Fitters: Mr. Porter and Mr. Tracey were responsible for fitting work in 96 Fenway (i.e., tying over new gas service to existing meter assembly).

Robert Gibbons/Brian Condon—KeySpan Fitters: Mr. Gibbons and Mr. Condon were responsible for fitting work in the other buildings.

10. Provide the name of the person who removed the blank flange at the outlet of the three-inch valve on the service in 96 Fenway, and the time it was removed?

Response: Robert Porter removed the blank flange on the morning of April 6, 2005.

11. Please provide a copy of KeySpan's procedures for the installation of the three inch service installed at 96 Fenway. Do KeySpan's procedures require the service valve to be open or closed during a pressure test of the service?

Response: Please see attached copy of CNST-5010: General Construction Requirements (Attachment 5) from KeySpan's O & M for the procedures for installation of the three inch service line at 96 Fenway. KeySpan's procedures do not specify whether or not the service valve has to be either open or closed during a pressure test of a service.

Very truly yours,



Thomas R. Teehan

TRT/dmo
Enclosures

13, APR., 05

TO: ROBERT MOOREHEAD

ON 6, APR., 05 APPROXIMATELY BETWEEN 13:30 AND 14:00 I ENTERED THE BASEMENT OF 96 FENWAY BOSTON FROM THE FRONT ENTRANCE. I MADE MY WAY TO THE REAR OF THE BASEMENT. I SAW ONE AL 5000 MTR. WITH THE SERVICE COCK IN THE OFF POSITION. I ALSO SAW A NEW SERVICE TO THE RIGHT OF THE OLD SERVICE. THE NEW SERVICE HAD A 3" GAS COCK IN THE OFF POSITION COMING OUT OF THE GAS COCK WAS 3" PIPING WITH AN OPEN ELBOW. I ALSO NOTICED A 2" BALL VALVE ON THE HOUSE PIPING IN THE OFF POSITION. ABOUT ONE HOUR LATER I REENTERED 96 FENWAY THROUGH THE REAR ENTRANCE WITH MY MANAGER BILL LAFERRIERE. WE VIEWED THE GAS MTR. AND PIPING. THE THREE GAS COCKS WERE STILL IN THE OFF POSITION.

Wm. J. Henry
P.F.R. SUPERVISOR

STREET & NO. <i>96 Fenway</i>		CITY & ZIP <i>Boston</i>	DATE & TIME OF INCIDENT <i>13:06</i>	NO. OF APT. IN BLDG. <i>Unknown</i>
OWNER'S NAME <i>Northeastern Univ</i>		OWNER'S ADDRESS <i>96 Fenway</i>		
NAME	SUITE	GAS FIRST SMELLED AM PM	GAS CO. NOTIFIED AM PM	WHERE WAS INJURED TAKEN?
HOME ADDRESS <i>Extend of injuries unknown</i>		IF MEDICAL AID, BY WHOM?		
INJURIES CLAIMED <i>See DTC incident report April 13, 2005</i>				
NAME	SUITE	GAS FIRST SMELLED AM PM	GAS CO. NOTIFIED AM PM	WHERE WAS INJURED TAKEN?
HOME ADDRESS		IF MEDICAL AID, BY WHOM?		
INJURIES CLAIMED				
STATEMENTS MADE BY OTHERS				

F 1509 REV. 72

PROPERTY DAMAGE (FULL DESCRIPTION)

Damage to entire building

DESCRIPTION OF INCIDENT

Fitting crew inadvertently left valves on services fully open and went to lunch. Crew (MSF) activated main not knowing the valves was in open position

STATEMENT OF EMPLOYEE

See Above

INCIDENT REPORT

WITNESSES	ADDRESS	DATE <i>9/2/05</i>	TIME AM PM
NAME <i>R. MOOREHEAD</i>	ADDRESS <i>109 Granite St. Malden, MA</i>	SIGNER <i>R. Moorehead</i>	

Purging Checklist

ATTACHMENT 3

BOSTON GAS COMPANY
DISTRIBUTION DEPARTMENT

PURGING CHECKLIST

DATE 4/14/05
 ADDRESS R/R 507 @ Hemenway St TOWN ROSLINDEN
 COST CENTER # 405710 G. L. ACTIVITY # 8506 WORK ORDER # 405710

1) The size and length of the pipe to be purged:

6" Size 340' Length

2) The purge procedure needed based on size and length of piping:

- Natural gas purge
- Inert gas purge
- Air purge
- Special written procedure

3) If an inert gas purge or special procedure requires nitrogen, the number of bottles required (210 cu. ft. per bottle):

1 Bottles required

4) Equipment required at job site:

- Ground Vent Stack
- Combustible Gas Indicator
- Fire extinguishers
- Cylinder regulator, if using nitrogen
- Two 2-way radios (one at each end and continuously attended) or other appropriate form of voice communication
- Fire Suit and Gloves

5) Plastic Main Y (Y/N) Plastic Main Static Ground Y

6) Inert gas introduced (if required):

1:05 Time Started 1:15 Time Stopped

7) Natural Gas (purging into service) or air (purging out of service) introduced:

1:05 Time Started 1:15 Time Stopped

8) Sample readings of 90% or higher, if purging into service, or of 1% or less, if purging out of service (using same CGI):

1) <u>90</u> % GAS	<u>1:13</u>	Time
2) <u>91</u> % GAS	<u>1:14</u>	Time
3) <u>93</u> % GAS	<u>1:15</u>	Time

9) Main or service purged and, if purging into service, fully pressurized:

1:15 Time

Employee's signature

PURG-5010: Purge and Gas-in of Mains and Service Lines

Date:	07/01/04	Filed:	Yes	Application:	MA
		Review:	Annual	Lead Org:	Field Ops
Revision:					

DESCRIPTION

This procedure describes the methods used to purge gas mains and service lines with an MAOP of 100 psig or less into service and out of service (e.g., for abandonment).

PROCEDURE

A. DEFINITIONS

1. **Purge:** The act of displacing air or gas from a main or service line.
2. **Purge Gas:** The gas used to displace the contents of the main or service line. A purge gas may be air, an inert gas (a noncombustible gas such as nitrogen), or natural gas.
3. **Purging Into Service:** The act of replacing the air or inert gas in a main or service line with natural gas.
4. **Purging Out of Service:** The act of replacing the natural gas in a main or service line with air or an inert gas.
5. **Slug:** A quantity of inert gas placed between the air and natural gas during purging. The slug does not fill the complete length of the main or service line but moves through the pipe as a separate mass to prevent mixing of natural gas and air.

B. SCOPE

1. This procedure prescribes purge methods for mains and service lines through 12 inches in diameter and up to 4,000 feet in length. All mains and service lines greater than 12 inches in diameter and/or greater than 4,000 feet in length shall require a written purging procedure.
2. Any network of mains, regardless of size or length, may require a written purging procedure. The written purging procedures shall be developed by Operations Engineering or Project Engineering.
3. The following short segments of main that are installed during repairs or relocations do not have to be vented and purged in accordance with this procedure, provided that one valve or stop-off device supplying the natural gas is opened for a period of time before the other valve or stop-off device is opened so as to eliminate a slug of air forming.

Pipe Diameter (inches)	Maximum Length Of Pipe (feet)
2	50
3	45
4	40
6	25
8	10
10	7
12	5

4. When maintenance requiring interruption of gas flow (e.g., damaged pipe) is performed on a service line or dead-ended main of lengths greater than listed the interrupted service line or main does not have to be vented and purged in accordance with this procedure, provided there was still gas in that portion of the service line or main prior to its reconnection. The reconnected service line or main should be gas purged at an existing service line, such as at an outside riser.
5. Mains of diameters and lengths described above that are removed from service do not have to be vented and purged in accordance with this procedure.
6. Service lines less than two inches in diameter, or of diameters and lengths listed above, do not have to be vented and purged in accordance with this procedure. When purging such a service line into service, the meter or riser valve shall be shut off and plugged or capped before the main is tapped out and gas enters the service line.
7. This procedure specifies when natural gas or air shall be used as the purge gas; and when a slug of nitrogen shall be injected between the air and the natural gas. This procedure does not specify how a main or service line shall be purged in its entirety with an inert gas before introducing natural gas into the line.

C. GENERAL

1. All sources of ignition shall be removed and/or neutralized from the immediate vicinity of the vent stack or other areas where natural gas may escape during the purge (e.g., transformers, electrical cords, open flames, Company vehicles).
2. A CGI, that has been maintained and calibrated, shall be used to sample the gas at the vent stack.
3. Service lines may be purged separately from, or jointly with, the main.

4. Connections, valves, and fittings, which are part of the purging apparatus, and Will be left in service after the purge is completed, shall be pressure tested. This pressure testing may be performed in conjunction with that of the main or service line.
5. Purging apparatus piping, which will not be left in service after the purge is completed, shall be inspected before the purge is conducted to ensure that all connections are tight. This may include soap testing the purging apparatus at the pressure it will be subjected to during the purge.

D. MAINS AND SERVICES THAT WILL BE PURGED WITH NATURAL GAS OR AIR

1. The following diameters and lengths of main shall be purged by directly displacing air in the main with natural gas when purging into service, or by displacing the natural gas in the main with air when purging out of service:
 - a. 4 inches or less in diameter having a length not greater than 4,000 feet, except as shown in the chart above.
 - b. 6 inches through 12 inches in diameter having a length not greater than 750 feet.
2. The following service lines shall be purged by directly displacing air in the service line with natural gas when purging into service, or by displacing the natural gas in the main with air when purging out of service:
 - a. 2 inches through 4 inches in diameter having a length greater than specified in the above chart.
 - b. 6 inches through 12 inches in diameter having a length greater than that specified in the above chart, but not greater than 750 feet.

E. MAINS AND SERVICE LINES THAT WILL BE INERT GAS PURGED (SLUG METHOD)

1. The following diameters and lengths of main shall be purged by injecting a slug of nitrogen gas between the air in the main and the natural gas when purging into service, or between the natural gas in the main and the air connection when purging out of service:
 - a. 4 inches or less in diameter, having a length greater than 4,000 feet.
 - b. 6 inches through 12 inches in diameter, having a length greater than 750 feet.
 - c. Service lines 6 inches through 12 inches in diameter having a length greater than 750 feet shall be purged by injecting a slug of nitrogen gas between the natural gas in the main and the air in the service line when purging into service, or between the natural gas in the service line and the air connection when purging out of service.

F. MAIN PURGING REQUIREMENTS UNDER ANY METHOD

1. Isolation

- a. The main to be purged shall be checked for isolation from the source of natural gas and other pipelines that could inadvertently supply natural gas to the segment to be purged. The method of isolation shall include valves, stoppers, and/or bags when purging into service, and physical disconnection from all supplies of gas when purging out of service.
- b. When purging into service, all valves that could supply natural gas and shut-off devices connected to the main shall be checked to ensure that they are in the closed position and readily operable.

2. Vent Stack

- a. A 1½ inch, 2 inch, or 3 inch vent stack of metal pipe shall be installed at the outlet of the segment of main to be purged. The top of the vent stack shall be at least seven feet above ground level.
- b. The outlet of the main shall not be less than a 1¼" tap hole. The tap hole shall not be more than eight feet from the end of the main.
- c. The vent stack shall contain at least one valve, which shall be located reasonably close to the main. Another valve may be placed above ground for ease of operation during purging. Vent stack valves shall be kept in the closed position until purging begins.
- d. The vent stack shall contain a sampling point for a CGI at least one foot above the main, and at a point that is safe and convenient for obtaining the samples. (See PURG-6040)
- e. The vent stack and the main to which it is connected shall be grounded.
 - For steel or cast-iron pipe, at least a 12 gauge copper wire should be used.
 - For plastic pipe, cotton or burlap rags, saturated with a soapy solution, shall be wrapped around the pipe and in contact with the soil (wet rag technique) or the Arcless Static Ground (ASG), or equivalent, shall be used.
- f. The location of the outlet end of the vent stack shall be selected to prevent natural gas from discharging into:
 - Buildings and confined spaces where there are vents, ducts, doors, windows, or other openings through which natural gas may enter a structure; or
 - Areas where there are sources of ignition.

This may require the connection of an approved compressor hose or bypass hose between the tap hole and the vent stack, which would be located a safe distance from the things described in F.2.f above.
- g. When selecting a location for purging, consideration shall be given to the odor of gas and the noise that will be created.

3. Communications

- a. Radio, Nextel phone, or other adequate form of voice communication shall be established between both ends of the main to be purged.

- b. Before purging begins, Dispatch shall be notified. Emergency Dispatch shall notify Gas Control, other Company personnel as directed, and appropriate municipal agencies.

4. Pressure Control Of Source Gas

As conditions warrant during purging into service, pilot lights should be checked or some other method of monitoring used to ensure that there is adequate pressure to serve those customers in the immediate vicinity of the purge.

G. Service Line Purging Requirements Under Any Method

1. Isolation

- a. All service line valves shall be checked to ensure they are in the closed position and readily operable.

2. Venting Purge Gas

- a. The location of the outlet end of the venting device shall be selected to prevent natural gas from discharging into:
 - Buildings and confined spaces where there are vents, ducts, doors, windows, or other openings through which purge gas may enter a structure;
 - Areas where there are sources of ignition; or
 - The service line trench.
- b. This may require the connection of an approved compressor hose or bypass hose between the service line and a vent pipe, which would be located a safe distance from the things described in items G.2.a .
- c. When selecting a location for purging, consideration shall be given to the odor of gas and the noise that will be created.
- d. b. Consideration shall be given, such as during an inert gas purge (see Section I), to using a vent stack as described in Section F.2.
- e. c. The service line to be purged shall be grounded in accordance with Section F.2.e.

3. Communications

- a. An adequate form of voice communication shall be established between both ends of the service line to be purged. If the line is relatively long, communication by radio or Nextel phone should be considered.
- b. Communication shall be maintained from the start-up, to the completion of the purge.

H. Performing The Purge

1. The first five sections of the Purging Checklist should be completed prior to the start-up of the purge.
2. The start-up of the purge shall be confirmed through the established communication system. Communications shall be maintained during the purge.

3. The vent stack valve(s) or venting device shall be fully opened.
4. For purging a main into service, the valve (or other shut-off device) that separates the natural gas from the main to be purged shall be opened. The valve shall be opened to introduce natural gas into the main in a moderately rapid and continuous manner, while still providing adequate operating pressure to the distribution system in the immediate vicinity of the purge.
5. For purging a service line into service, the service line valve shall be opened at or near the main. The valve shall be opened to introduce natural gas into the service line in a moderately rapid and continuous manner, while still providing adequate operating pressure to the distribution system in the immediate vicinity of the purge.
6. The pressure and/or the flow of the purge gas shall be monitored continuously until the purge is completed. When purging a main into service, the pilot lights at nearby customers should be checked during and after completion of the purge.
7. The purge gas being discharged from the vent stack shall be tested at the sample point with the CGI. The purge shall be complete after three consecutive readings of 90% gas or higher are obtained when purging into service, or 1% gas or less when purging out of service.
8. The vent stack valve(s) or venting device shall be closed.
9. For purging mains into service, the source gas valve shall be fully opened and the purged main fully pressurized.
10. For purging service lines into service, the service line valve shall be opened at or near the main and the purged service line fully pressurized.
11. When purging out of service, the end(s) of the pipeline shall be permanently sealed.
12. The remainder of the Purging Checklist shall be completed.

I. Performing The Inert Gas Purge (Slug Method)

1. The first five sections of the Purging Checklist should be completed prior to the start-up of the purge.
2. For purging mains into service, a ¾ inch tap hole shall be cut in the main to be purged as close as possible to the source of natural gas, but not more than eight feet from the valve or other shut-off device. A valve shall be installed as close to the main as possible.
For purging service lines into service, a ¾ inch tap hole shall be cut in the service line to be purged as close as possible to the main, but not more than eight feet from the service line valve at or near the main.
3. The number of 210 cu. ft. nitrogen (N₂) cylinders needed to purge the diameter and length of main or service line shown in the table below shall be determined.

Main Length (feet)	Size Of Main			
	6	8	10	12
750 - 1,000	1	1	1	1

1,000 - 2,000	1	1	1	2
2,000 - 4,000	1	1	2	2

4. The nitrogen cylinders and piping shall be set up similar to that shown in the diagram, "Typical N₂ Purge Arrangement" (see PURG-6040). All inert gas valves shall be in the closed position. The tank(s) and fittings shall be grounded.
5. The start-up of the purge shall be confirmed through the established communication system. Communications shall be maintained during the purge.
6. The vent stack valve(s) shall be fully opened.
7. The valve connecting the ¾ inch tap in the main or service line to the N₂ cylinders shall be opened.
8. The valve(s) in the N₂ purge arrangement shall be opened and the appropriate N₂ cylinder set to 50 psig. That pressure shall be maintained. The slug of N₂ should be rapidly flowing into the main or service line. (Freezing of pipe components occurs with excessive withdrawal rates from N₂ cylinders, which shall be avoided.)
9. When all of the N₂ cylinders are empty, all the valves on the N₂ purge arrangement and the valve at the ¾ inch tap hole in the main or service line shall be closed. (A N₂ cylinder shall be considered empty when the cylinder's gauge reads 50 psig.)
10. For purging mains into service, the valve (or other shut-off device) that separates the natural gas from the main to be purged shall be immediately opened. The valve shall be opened to introduce natural gas into the main in a moderately rapid and continuous manner, while still providing adequate operating pressure to the distribution system in the immediate vicinity of the purge. There should be no delay in introducing natural gas in order to preserve the effectiveness of the slug. The purge shall be considered void if there is a 3-minute delay.
11. For purging service lines into service, the service line valve at or near the main shall be immediately opened. The valve shall be opened to introduce natural gas into the service line in a moderately rapid and continuous manner, while still providing adequate operating pressure to the distribution system in the immediate vicinity of the purge. There should be no delay in introducing natural gas in order to preserve the effectiveness of the slug. The purge shall be considered void if there is a 3-minute delay.
12. The pressure shall be monitored with a gauge and/or the flow of the purge gas shall be monitored continuously until the purge is completed. When purging a main into service, the pilot lights at nearby customers should be checked during and after completion of the purge.
13. The purge gas being discharged from the vent stack shall be tested at the sample point with the CGI. The purge shall be completed after three consecutive readings of 90% gas or higher are obtained when purging into service, or 1% gas or less when purging out of service.
14. The vent stack valve(s) shall be closed.

15. For purging mains into service, the natural gas valve or other shut-off device shall be fully opened, and the purged main fully pressurized.
16. For purging service lines into service, the service line valve shall be fully opened, and the purged service line fully pressurized.
17. When purging out of service, the end(s) of the pipeline shall be permanently sealed.
18. The remainder of the Purging Checklist shall be completed.

J. Safety During Purging

1. A fire extinguisher shall be placed at a readily accessible location at both ends of the main or service line to be purged.
2. A fire suit and gloves shall be worn by the person(s) sampling the purge gas and controlling the vent stack valve(s).
3. Supplemental air should be available for use at purge sites in the event an unplanned escape of natural gas and/or nitrogen occurs.
4. The purge process should be visually monitored for its entire duration.

[REF.: 49 CFR 192.629; DPU 90-PL-010; AGA report "Purging Principles And Practices" (catalogue XK0775)]

(End PURG-5010)

EXHIBIT 15

KeySpan Procedures For Purge and Gas-in Of Mains And Services

PURG-5010: Purge and Gas-in of Mains and Service Lines

Date Revised:	06/23/2006	Filed:	Yes	Application:	MA-NH
		Review:	Annual	Lead Org:	Field Operations
Revision:					
Location	From:			To:	
PURG-5010	Prior PURG-5010 NH referred user to <i>AGA Manual for Purging Principles and Practices</i> for purging methods.			Best Practices: Adopted existing PURG-5010 MA procedures to NH region. Canceled PURG-5010 NH.	
Section C.3.	?			Added verbiage: "When mains are purged separately from services, the service line valve shall be closed and meter or riser valve shall be shut off, plugged or capped before the main is purged."	
Section C.7.	This note was non-existent in PURG-5010 MA. Carried note over from PURG-5010 NH document.			Made note applicable to PURG-5010 MA document: "A sketch of the piping system should be made to visualize the requirements of each purge. Multi-legged new piping systems, as illustrated below, may require sectionalization to effect a safe purge."	
Sections F.2.e and J.5.	No reference to SAFE-5030 in previous MA and NH purge documents.			Added references to SAFE-5030 for 'dissipation of static electricity on plastic stacks and pipe'.	

DESCRIPTION

This procedure describes the methods used to purge gas mains and service lines with an MAOP of 100 psig or less into service and out of service (e.g., for abandonment).

PROCEDURE

A. DEFINITIONS

1. **Purge:** The act of displacing air or gas from a main or service line.
2. **Purge Gas:** The gas used to displace the contents of the main or service line. A purge gas may be air, an inert gas (a noncombustible gas such as nitrogen), or natural gas.

EXHIBIT 16

**Department Investigator's Field Notes
April 6, 2005**

4-6-05

Requested by C. Bourne at 2:30 p.m. to proceed to 96 Fenway St, Boston, to assist A. Motley on a natural gas incident at Kerr Hall, Northeastern University. Mr. Bourne received a call from Denise Desautel about 2:05 p.m. of an incident at Northeastern U. Mr. Bourne contacted the Keyspan dispatcher who verified there was an explosion at Kerr Hall. Dispatch reported a crew working on a service line may have turned the gas back on prematurely. I arrived at the front entrance to Kerr Hall at about 3:35 p.m. and introduced myself to Deputy Chief Kevin McCurtain of the Boston FD. I gave him my card, and as he was occupied with a group of other personnel I left to find Keyspan officials. I located Dennis MacAleese, Bill LaFerriere, Tricia Vigeant and others who were in the rear alley behind Kerr Hall. I met Greg Feeney, Feeney Brothers, who briefed me on the work a Feeney crew had done- installed about 300' of six-inch plastic LP main to replace a CIM that had been and would be encroached. The crew also installed four gas services off the main, one of which entered the rear of Kerr Hall. I observed numerous fire department emergency vehicles in the area, both front and rear. Many firemen were also in the area. They were also in the building making certain that any fires had been extinguished. After a short while, I met Angela. We were directed to Bob Morehead, who, we were told, would be leading the interrogations of the Keyspan employees. Bob related to us they did not know what happened at this time, and that the employees were being taken away for drug testing. I observed an excavation over the new main in the alley. The 6" PE main had been squeezed off with a squeeze off tool. The PE main that had just been installed had been connected to a PE main that had been previously installed. I also observed a CIM that had been cut and capped with a Dresser end cap. There was a second excavation at the end of the alley. The PE main ended here with a 6x4" reducer, end cap and a service tee electrofused to the main. The older main was also visible in the excavation. As I was walking around a fire truck to get to #96, I was stopped by a person (either a fire fighter or a member of the Boston ISD (inspection Services Department). He granted me access to the rear of the alley, but cautioned me that the building was not safe and not to enter the building or stand in the rear very long. They were unsure of the safety of the building. Angela met me here, and we met Tom Carlson, self- employed. He stated he was hired by Northeastern, and he or his men are usually on the campus every day. He told us he and his two men were in the basement of Kerr Hall shortly before the explosion occurred, and they felt very lucky. When they went in the building, he smelled a strong odor of gas. He told his men they had to get out of there. As they were leaving they walked by the gas meter, and he smelled a strong odor of gas, saw an open pipe and heard gas escaping. He made a noise similar to the sound of escaping gas (sssssing sound). They observed several gas company employees outside the building (one was in the pickup truck eating lunch so they thought maybe this was no big deal. About a minute or two later, there was a big explosion. The force of the explosion hit them in their backs. They were all shaken up. He said his men went home. He rubbed the back of his head, but said he was all right. We met Peter Rizzi, Fire Safety Officer at Northeastern and Dan Bourque, VP of Facilities. After the Boston ISD personnel determined that the building was still structurally sound, people would be allowed access to the building with an escort. We cleared it through Mr. Bourque that we

would be permitted access to the service and the existing gas meter through the rear entrance instead of the front entrance. I took a number of pictures of the gas facilities and other equipment in the basement. Angela and I noted that all of the gas valves were in an "off" position. We met Tom Klem, of T. J. Klem and Associates, 24 Robert Road, Stoughton, MA 02072; (O) (781) 344-1115, (C) (617) 510-6367. He is a certified fire investigator, and has been retained by Northeastern University to Investigate this incident. He pointed out the scratch marks on the nut of the new 3" gas valve in the basement-indicating recent operation. I met James Young, Plumbing & Gas Inspector (ISD) who was on site until the 3" service into #96 had been pressure tested. Sometime earlier in the afternoon (early evening) I observed a Keyspan employee conducting a walking leak survey of the entire alley area with a FIU. Angela and I were informed by Bob Morehead that the results of this survey were negative and there was no gas leakage in the area. We were informed by Mr. Morehead that the gas main had been purged into gas service earlier this day, after the pressure test had been completed. He stated that the main and the four services were pressure tested overnight, for a period of 16 hours. Gas was admitted into the new main from the area of the squeeze-off tool. The air and gas exited the other end of the main. Mr. Morehead stated that once three reading of 100% gas were obtained at the purge point, the purge was shut down. He also stated that one of the workers related that the explosion occurred shortly after the purge had been completed. About 7 p.m. Angela and I met two fitters who were working to change over the service in #122 to the new service. Tom O'Keith, one of the fitters, stated they were working at a new restaurant at Fenway Park when he heard a loud boom. He said he knew what that noise was. He looked at his watch, and it indicated "1:20 p.m.) They were then dispatched to this area to assist. Angela directed Keyspan to pressure test the new service to verify that it was not leaking. Joe Renihan and Bob Gould, both Keyspan supervisory employees were at the site when the service was tested. The service was cut downstream of the curb valve in the alley, and a pressure test using air as the test medium was conducted at a pressure of 28" w.c. for 15 minutes (11:10- 11:25 p.m.). The active end of the service was capped with a Dresser end cap. This section was leak tested with soap solution from the 6x6 connection at the main to the end cap. No leaks were indicated by either test. Ms Motley and I agreed that there was no reason to conduct a pressure test of the existing service into the building, and C. Bourne also agreed with this decision.

4-7-05

Continued investigation of the Incident at 96 Fenway on 4/6/05. Reviewed Incident with A. Motley, P. Grieco, W. Stevens, V. Glenn and C. Bourne. Called Boston FD. Deputy Chief Kevin McCurtain is located at 746 Centre St, Jamaica Plain. Will return on April 14. Spoke with Deputy Chief Dunderdale. Lt. Bob Meyer is located at Engine 33, Boyleston St and will also return on April 14. Reviewed pictures of Incident.

4-8-05

Continued Incident investigation of natural gas explosion/fire at 96 Fenway, Boston. Contacted Tricia Vigeant. Discussed agreement by C. Bourne for Keyspan to remove

EXHIBIT 17

**Department Investigator's Field Notes
May 8, 2005**

occurred. They are both still out of work. Marta has a broken bone in or near her pinky, it is in a cast, has bruises all over and until the swelling in her hand subsides- will not know if she requires an operation. According to Steve, a door injured her. Peter Duncan was working in the laundry room above the boiler room. Neither employee made any statements to the effect that they observed an open flame in the basement. Doesn't believe they were down there. On April 13 I met with Bill Stevens, Legal Division, to review the Incident and pictures taken at the scene on the day of the incident. Worked with A. Motley to prepare an "Information Request" to Keyspan.

5-8-05

At 11:30 a.m. contacted Lt Bob Meyer of Engine 33 to arrange for a visit to his station to interview him relative to the incident at Kerr Hall on April 6, 2005. He had not been informed by FIU that it was permissible for him to speak with me. I contacted FIU at (617) 343-3324 and spoke with Inspector Williams about the need to interview Lt Meyer as well as the personnel from Rescue 2 (Gerald Miller and Bill Benevelli). At 1:15 p.m. Inspector Williams called to confirm a meeting with Lt Meyer. He stated that the personnel from Rescue 2 were also on duty this day. Since it had been difficult to arrange a meeting with these persons due to their conflicting schedules, it was agreed to meet with all of them at their respective stations. Inspector Williams would attend the meetings. I met with Lt Meyer and Inspector Williams at Engine 33 on Boylston St at 2:30 p.m. Lt Meyer stated he arrived at the scene shortly after the explosion. He observed a large white cloud in the rear alley and visibility was poor. The cloud was not smoke; it was plaster dust. There were three Keyspan employees standing in the alley adjacent to the meter room. They appeared to be shaken up and stunned. A shorter, stocky man with a butch haircut did the talking. A pickup truck and a van were beside the building in the alley when the fire department arrived. He asked a Keyspan employee to move the van. The van was moved further down the alley, out of the way. Lt Meyer said he did not go in the building, and he didn't smell any gas. I also interviewed Lt. Dave Montoya. He stated he spent 90% of his time in the front of the building. He did not speak with any Keyspan employees. He stated that Steve (Eldeberto) Rodriguez was the driver of ladder 15. The next stop was Rescue 2 on Columbia Rd., Eggleston Square. I met Capt. Jack McKenna. He had no dealings with any Keyspan personnel, and he referred to Lt. Mullane of Engine 37. Capt McKenna said that Mullane told him he (thinks) he shut off the gas in the cellar. But Gerry Miller is the person we need to talk with. Capt McKenna stated he advised the Chief to clear the building because the floors were unsafe. The next interview was with firefighter Gerry Miller. He stated when he arrived at the scene there was mass confusion. He believed he was the third or fourth person to arrive. The Chief told them to search the building. They used gas detectors and obtained high gas readings on the fifth floor. They had to break down a number of doors to gain access to the dorm rooms. He went around the building to the basement. Bill Benevelli was next to the gas meter with a Keyspan employee (a big heavysset fellow). There was discussion about the status of the gas valves and if the service was on or off. Gerry asked the Keyspan employees outside the building for a Stillson wrench to close the down stream valve (inlet) of the meter. A Keyspan employee gave him a

wrench and then said, "What for?". The Keyspan employee said he turned off the gas in the street. The open butt (pipe- 3") in the meter room caught his attention. It was new pipe. He stated that it was a major leak that caused the explosion. I then interviewed firefighter William Benevelli. He stated that Lt. Neil Mullane, Engine 37, shut off the gas (a butterfly valve) on the outlet of the gas meter. There was a discussion about the status of the valve before the meter. A Keyspan employee stated it appeared to be on. Then Gerry asked for a Stillson, which he received from a Keyspan employee. Bill said he started to operate the inlet valve, but a Keyspan employee stated that he had shut off the gas in the street. There was more discussion about the status of the valve and the gas service, but the Keyspan employee was adamant that the gas was off. I requested to receive written statements from Lt Meyer, firefighters Benevelli and Miller and Lt. Mullane. Inspector Williams will find out when Lt. Mullane will return to work. He will also get reports from these persons. As a follow-up, I contacted Inspector Williams on May 11. He has statements from Lt. Meyer and fire fighter Benevelli. I made arrangements to meet him at his office at 920 Mass Ave. prior to the end of his shift at 8:00 a.m. on May 12.

EXHIBIT 18

Statement of Firefighter Gerald Miller, Boston Fire Department

statement of Gerald Miller, Firefighter Rescue 2

Northeastern University
96 The Fenway
Boston Mass

Upon arrival Rescue-2 was ordered to; search, evacuate and to monitor gas levels within the building.

Upon entering the building our gas detector went into alarm mode, Cpt. McKenna ordered FF William Benevelli to go to the basement to make sure that the gas was shutoff. Cpt. McKenna then ordered me to find FF Benevelli, and to verify that the service was off, due to the fact that our detector was still in alarm mode showing dangerous levels of gas. I located FF Benevelli in the basement at the rear of the building.

Upon entering the room from the alleyway I observed a very large gas meter in the rear left of the room (facing from the front of the building). To the right of this meter, I observed a new 4" black iron pipe entering from the outside through the rear wall, this was an open pipe not connected to anything. At this time FF Benevelli was speaking to a Key Span employee who stated that the gas was still on. From the rear doorway I saw a 2nd Key Span employee with a pipewrench standing outside in the alley. I called to this man and asked him to give me the wrench, he entered the room & stated that the gas was off. I asked him if he was sure & he stated that he had shutoff the gas service himself, however the other employee stated that it was still on. There seemed to be some confusion between these two men. I again asked the man outside about the gas service and he assured me that he had personally shutoff the service to the building from outside in the alleyway. I accepted his word and FF Benevelli & I went to report this to Cpt. McKenna whereupon we undertook a search of the upstairs of the building for occupants.

EXHIBIT 19

Statement of Firefighter William Benevelli, Boston Fire Department

BOSTON FIRE DEPARTMENT

From: FF William Benevelli RESCUE 2 Date: May 11, 2005

To: Fire Investigation Unit

Subject: Incident 18028

Sir:

Report is made that on April 6th, 2005, Rescue 2 was ordered by Fire Alarm to respond to a "building explosion", @ 96 Fenway, District 5. Upon arrival, Fire Captain McKenna R-2 was ordered by District 5 to shut off the natural gas line located in the basement of #96 Fenway.

Fire Captain McKenna ordered me (FF William Benevelli R-2) to locate the meter room, in the basement area and confirm the complete shut off of the natural gas feed to the building. I

(FF W. Benevelli R-2) located the gas meter and visually observe that only (1) of (2) gas line feeds had a shut off handle, and that handle was in the vertical position, indicating the gas was shut off.

It was observed by me (FF Benevelli R-2) that the second natural gas appliance feed line did not have any shut off at the gas meter. Fire Lt. Neil Mullane Jr. Engine Co. 37 followed the second natural gas appliance feed line, leaving the meter and to confirm when the valve was shut off.

While at the main meter it was observed that the inline shut off valve of the main line appeared to be in the "open position". I questioned a gas company employee, in the basement and I asked him to confirm if the valve handle was either in the "on" or "off" position. The above gas company employee, reported to me that it was still "on".

FF Jerry Miller R-2 entered the meter room and heard our conversation "that the main line was still on" and asked a different gas company employee for a wrench to shut off the main valve at the meter. This employee gave FF Miller R-2 the wrench and he handed it to me. This gas company employee stated "that he had shut off the gas from the street." FF Miller stated that "his co-worker said the gas line was on." The gas company employee again stated "that he had shut off the gas outside the building and that everything was off."

Respectfully Submitted,

William F. Benevelli

William Benevelli Co R-2

RESCUE II Co _____

District No. _____

Division No. _____

Hdqtrs. _____

Date: 5/1/05

Date: _____

Date: _____

Date: _____

Forwarded Respectfully, _____

Fwd'd, _____

Fwd'd, _____

Fwd'd, _____

Captain

District Chief

Deputy Chief

Chief

OFFICERS FORWARDING WILL APPROVE, OR IN CASE OF DISAPPROVAL GIVE REASONS.

METER

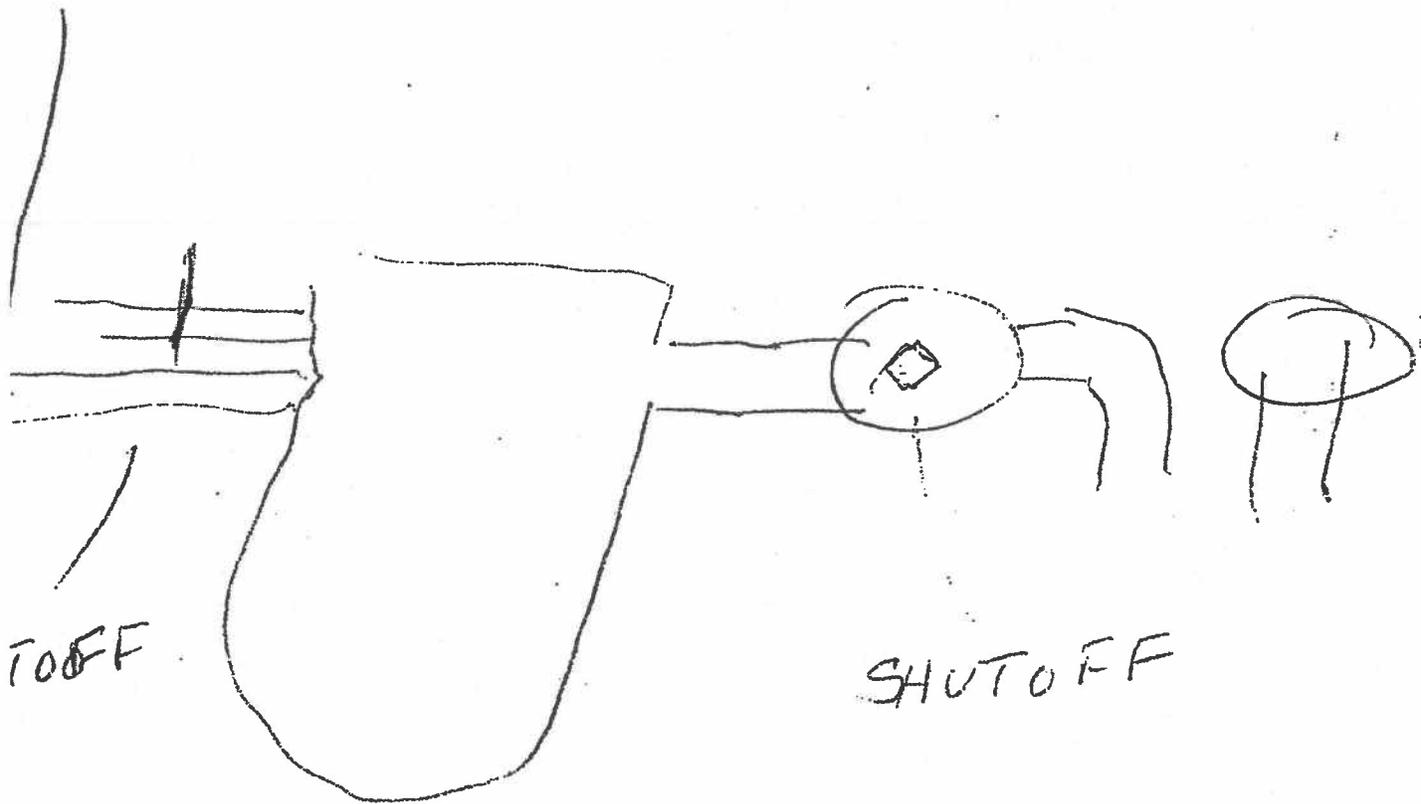


EXHIBIT 20

Statement of Lieutenant Meyer, Boston Fire Department

BOSTON FIRE DEPARTMENT

From: Engine 33

Date: May 08, 2005

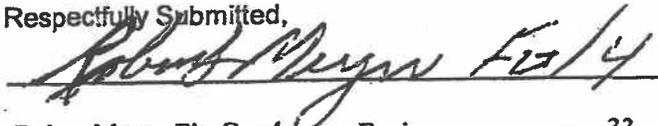
To: FIU Lenny Williams

Subject: 96 Fenway 4/6/05 2 pages

Dear Sir: The following is my recall of incident # 18028 at 96 The Fenway on 4/6/05.

At approximately 13:20 hours Engine 33 and Ladder 15 were advised of an explosion at 96 The Fenway and we responded. Arriving on scene Engine 33 noticed Car 5 in the front of the building with Eng 37 and a cloud of white smoke in the air. Eng 33 proceeded to the rear of the building (laying a HAV line) down the alleyway and running hand lines to the rear door of 96 Fenway. Upon reaching the doorway E33 observed three KeySpan workers standing near their trucks in a dazed, confused and stunned look upon their faces. I immediately asked them if they were alright and they replied they were only a little shaken up but not hurt. I asked them for further information as to what happened and if anyone else was still in the building. They informed me that they were having lunch in the box truck when this explosion occurred and that none of the KeySpan workers were still in the building. As we talked further trying to get a handle on what happened a member of Rescue 2 appeared at the blown out hatch/door cover and asked for a stillson wrench to turn the gas off. The worker from KeySpan who seemed to be in charge of the crew, got a wrench from the box truck but before he could give it to the BFD Rescue 2 man, he insisted that we did not need it to turn the gas off for it was already turned off and no gas was in the building. He was very adamant about this and said we didn't have to turn anything off. Rescue 2 did not turn any gas valves off, they left our area as they found it. I asked the KeySpan workers to move the box truck away from the doorway for better access to the building and they did. The pickup truck was left where it was. After further talking with these KeySpan workers they told us they had run lines into four locations in the alley and were in the process of tying in the feeds to the buildings with new meters when they stopped for lunch and a few minutes later the explosion occurred. I again asked them if they wanted to see the EMS medical personnel, but they declined. E 33 returned to quarters and was called out

Respectfully Submitted,



Robert Meyer Flt Grp 4 Engine Co 33

_____ Co _____ District No. _____ Division No. _____ Hdqtrs. _____

Date: _____ Date: _____ Date: _____ Date: _____

Forwarded Respectfully, _____ Fwd'd, _____ Fwd'd, _____ Fwd'd, _____

 Captain District Chief Deputy Chief Chief

OFFICERS FORWARDING WILL APPROVE, OR IN CASE OF DISAPPROVAL GIVE REASONS.

BOSTON FIRE DEPARTMENT

From: Engine 33 Date: May 08, 2005
To: FIU Lenny Williams
Subject: 96 Fenway 4/6/05 2 pages

continued:

a second time for a building fire at 96 Fenway at approximately 15:00 hours. Upon arrival heavy smoke was showing and went to the rear of the building in the alleyway. E-33 dropped a HAV line and ran a handline to the rear door. E33 started their fire duties and when we were finished with the fire I spotted the same KeySpan workers from the first time. I went over to them and asked if they were alright and they said yes. I think they all needed a good break at this time with some chance to unwind. E33 returned to quarters at approximately 17:00 hours. During this incident E33 members did not smell the telltale odor of a typical gas leak.

Respectfully Submitted,

Robert Meyer FLT/4
Robert Meyer Flt Grp 4 Engine _____ Co 33

____ Co _____ District No. _____ Division No. _____ Hdqtrs. _____
Date: _____ Date: _____ Date: _____
Forwarded Respectfully, Fwd'd, _____ Fwd'd, _____ Fwd'd, _____

Captain District Chief Deputy Chief Chief

OFFICERS FORWARDING WILL APPROVE, OR IN CASE OF DISAPPROVAL GIVE REASONS.

EXHIBIT 21

KeySpan Crew Training Records



KeySpan Energy Delivery
52 Second Avenue
Waltham, MA 02451
Tel 781 466-5137
Fax 781 290-4965
E-mail teehan@keyspanenergy.com

May 25, 2006

Thomas R. Teehan
Senior Counsel

Ronald P. Danielson, P.E.
Dept. of Telecommunications and Energy
One South Station
Boston, MA 02110

Re: 96 Fenway, Boston, Massachusetts

Dear Mr. Danielson:

The following responses are being provided pursuant to your letter of April 12, 2006 regarding the above-captioned incident:

1. With respect to IR-3, Question 3, KeySpan stated that it conducted regular Safety and Operations and safety tailgate meetings with field crews in which they emphasized the importance of ensuring that all service valves are in the off position prior to activating mains. Were meetings held prior to the date of the Incident? If so, please provide the dates and names of any of the eight persons named in IR-3, Response 3 who worked at the Incident site on April 5-6, 2006, who attended these meetings.

Respondent: Daniel Dykes

Response: The Spring and Fall refresher training outlines for the period from 1999 to the date of the incident do not specifically list this topic for classes that were attended by the 8 individuals identified in IR-3. However, formal basic training records for new maintenance and construction employees going back to 1995 show that this topic was covered in basic training during that time frame.

2. With respect to IR-3, Question 5, KeySpan provided a listing of Employee Qualifications (Task ID) for each KeySpan employee who was working to install the gas main and services, pressure test the gas facilities, purge the gas facilities and install the new service pipe in the basement of 96 Fenway Street in April, 2005. For each of these employees, please provide the written procedure for each Task ID on which each employee worked at 96 Fenway Street.

Respondent: Daniel Dykes

Response: On the date of the incident, a KeySpan construction crew was purging a new gas main. Additionally, two KeySpan Fitters were performing work on a service line inside 96 Fenway.

On that date, the work performed by the KeySpan Fitters could have involved the following Employee Qualification Tasks: NGA-41 (Inspect valves); NGA-45 (Restore service); NGA-48 (Extend, cut back existing service line); NGA-70 (Abnormal Operating Conditions/Properties of Natural Gas). For the review materials, training outline, and O&M procedures for these tasks, please see Exhibit IR 5-2(a), which is attached.

On that date, the work performed by the KeySpan Construction crew could have involved the following Employee Qualification Tasks: NGA-32, 33 (Purging Air from Pipeline); NGA-35, 36 (Stopping Gas Flow). For the review materials, training outline, and O&M procedures for these tasks, please see the attached Exhibit IR-2(b), which is attached.

3. With respect to IR-3, Question 5 requested all training records for all of the employees who were working to install the gas main and services, pressure test the gas facilities, purge the gas facilities and install the new service pipe in the basement of 96 Fenway Street in April, 2005. KeySpan did not provide any prior training records. Are these records available? If so, will you kindly provide copies.

Respondent: Dan Dykes

Response: Please refer to Exhibit IR 5-3, which is attached.

Very truly yours,



Thomas R. Teehan

TRT/dmo
Enclosures

LEONARD SORENSON, JR.

<i>Session</i>	<i>Start Date</i>	<i>End Date</i>
MSF Fall Training	03/09/06	03/09/06
Digger Safety Tmg DOT Inspect	09/23/05	09/23/05
Spring Training	05/25/05	05/25/05
Spring Training	05/24/04	05/24/04
Spring Training	05/29/03	05/29/03
Fall Training	11/27/02	11/27/02
Spring Training	06/03/02	06/03/02
Meter Set/Reg. Check	10/16/02	10/16/02
Fall Training	11/28/01	11/28/01
Fall Training	11/30/00	11/30/00
PCS Refresher	04/20/00	04/20/00
Spring Training	06/01/00	06/01/00
Fall Training	12/06/99	12/06/99
Spring Training	05/24/99	05/24/99
Excess Flow Valve	02/05/99	02/05/99

ARMIDA A. ARMSTRONG

<i>Session</i>	<i>Start Date</i>	<i>End Date</i>
Spring Training	05/26/05	05/26/05
MSF Fall Training	11/22/04	11/22/04
OpQual CFR49.192Subpart N-4 hr	07/09/04	07/09/04
Spring Training	05/25/04	05/25/04
Spring Training	05/29/03	05/29/03
Fall Training	11/22/02	11/22/02
Spring Training	05/30/02	05/30/02
Meter Set/Reg. Check	10/15/02	10/15/02
Fall Training	11/15/01	11/15/01
Fall Training	11/27/00	11/27/00
PCS Refresher	04/21/00	04/21/00
Spring Training	05/23/00	05/23/00
Fall Training	11/23/99	11/23/99
Spring Training	05/10/99	05/10/99
Basic Training	05/07/96	09/30/96

ANDREW W. CROSS

<i>Session</i>	<i>Start Date</i>	<i>End Date</i>
Spring Training	05/25/05	05/25/05
MSF Fall Training	11/22/04	11/22/04
Spring Training	05/24/04	05/24/04
EEO Compliance Training	12/16/03	12/16/03
Ethics Training	12/16/03	12/16/03
Spring Training	06/10/03	06/10/03
Fall Training	11/22/02	11/22/02
Spring Training	05/30/02	05/30/02
Meter Set/Reg. Check	10/16/02	10/16/02
Fall Training	11/15/01	11/15/01
Spring Training	06/25/01	06/25/01
Fall Training	11/27/00	11/27/00
PCS Refresher	04/21/00	04/21/00
Spring Training	05/23/00	05/23/00
Fall Training	11/27/99	11/27/99
Spring Training	05/11/99	05/11/99

PATRICK J. MCKINNEY

<i>Session</i>	<i>Start Date</i>	<i>End Date</i>
MSF Fall Training	03/09/06	03/09/06
Digger Safety Trng DOT Inspect	09/23/05	09/23/05
Spring Training	05/25/05	05/25/05
MSF Fall Training	12/06/04	12/06/04
Spring Training	05/24/04	05/24/04
EEO Compliance Training	12/16/03	12/16/03
Ethics Training	12/16/03	12/16/03
Spring Training	05/28/03	05/28/03
Fall Training	12/05/02	12/05/02
Spring Training	06/04/02	06/04/02
Meter Set/Reg. Check	10/15/02	10/15/02
Fall Training	11/15/01	11/15/01
Spring Training	06/25/01	06/25/01
Fall Training	11/27/00	11/27/00
PCS Refresher	04/21/00	04/21/00
Spring Training	05/23/00	05/23/00
Fall Training	11/23/99	11/23/99
Spring Training	05/10/99	05/10/99
Excess Flow Valve Trainign	02/08/99	02/08/99

EXHIBIT 22

KeySpan Fitting Crew Training Records

ROBERT J. PORTER

<i>Session</i>	<i>Start Date</i>	<i>End Date</i>
PFR Refresher Training	11/01/05	11/01/05
OpQual CFR49.192 Subpart N-4hr	10/06/05	10/06/05
Mercury Regulator Training	06/23/03	06/23/03
PFR Fall Training	01/15/02	01/15/02
PFR Spring Training	07/01/02	07/01/02

MARK A. TRACEY

<i>Session</i>	<i>Start Date</i>	<i>End Date</i>
PFR Refresher Training	11/02/05	11/02/05
OpQual CFR49.192 Subpart N-4hr	10/07/05	10/07/05
OpQual CFR49.192 Subpart N-4hr	10/06/05	10/06/05
Ergonomics and Body Mechanics	10/12/04	10/12/04
EEO Compliance Training	12/12/03	12/12/03
Ethics Training	12/12/03	12/12/03
Leak Investigation Refresher	12/08/03	12/08/03
PFR Fall Training	01/15/02	01/15/02
PFR Spring Training	07/23/02	07/23/02
PFR Refresher	12/20/00	12/20/00

EXHIBIT 23

KeySpan Operator Qualification Records

EMPLOYEE QUALIFICATIONS

02/17/2006 Keyspan Energy Delivery New England

Employee ID: 21704 First Name: Patrick Last: Mckinney
Title: Tech A Technician A Phone:
Company: Keyspan Energy Delivery New England
Company: BGC State: MA
Location: RIVER
Department: PCS
Union Code: Union

QUALIFICATIONS

<u>Task ID</u>	<u>Name</u>	<u>Revision</u>	<u>Date</u>	<u>Next Date</u>
NGA-006	Inspecting for atmospheric corrosion	1	05/25/2005	05/25/2010
NGA-008	Visually inspecting for internal corrosion	1	05/25/2005	05/25/2010
NGA-011	Applying pipe coating in the field for maintenance	1	10/28/2002	10/28/2007
NGA-012	Cleaning and either coating pipe for atmospheric corrosion	1	10/28/2002	10/28/2007
NGA-014	Installing/replacing an anode on an existing line	1	10/28/2002	10/28/2007
NGA-015	Installing/replacing and testing electrical isolation couplings	1	05/28/2003	05/28/2008
NGA-016	Install/replace a corrosion test station on an existing	1	10/28/2002	10/28/2007
NGA-017	Repair coating on an existing steel main	1	10/28/2002	10/28/2007
NGA-020	Investigating leak/odor complaints	1	05/24/2004	05/24/2007
NGA-021	Line locating and mark out	1	05/25/2005	05/24/2008
NGA-022	Inspection of 3rd party excavations for damage prevention	1	10/28/2002	10/28/2007
NGA-023	Inspecting the condition of exposed pipe or pipe coating	1	05/28/2003	05/28/2008
NGA-024	Inspect pipe at a maintenance job for damage	1	05/28/2003	05/28/2008
NGA-029	Repair and distribution line leaks	1	05/24/2004	05/24/2007
NGA-030	Repair a non-leaking damaged pipe	1	05/24/2004	05/24/2009
NGA-032	Purging air from pipeline	1	10/28/2002	10/28/2007
NGA-033	Purging gas from pipeline	1	10/28/2002	10/28/2007
NGA-034	Performing pressure test on existing pipe	1	10/28/2002	10/28/2007
NGA-035	Stopping gas flow	1	05/25/2005	05/24/2008
NGA-036	Abandonment or Deactivation of Facilities	1	05/25/2005	05/24/2008
NGA-037	Tapping pipelines under pressure	1	05/24/2004	05/24/2007
NGA-039	Remove service tee or fitting from steel or cast iron mains	1	05/25/2005	05/25/2010
NGA-040	Replace a section of existing tracer wire	1	05/28/2003	05/28/2008
NGA-041	Inspect valves	1	05/28/2003	05/28/2008
NGA-042	Repair and maintain distribution line valves	1	05/28/2003	05/28/2008
NGA-043	Lubricate distribution line valves	1	05/28/2003	05/28/2008
NGA-045	Restore service	1	10/28/2002	10/28/2007

EMPLOYEE QUALIFICATIONS

02/17/2006 Keyspan Energy Delivery New England

Employee ID: 21704 **First Name:**Patrick **Last:** Mckinney
Title: Tech A Technician A **Phone:**
Company: Keyspan Energy Delivery New England
Company: BGC **State:** MA
Location: RIVER
Department: PCS
Union Code: Union

QUALIFICATIONS

<u>Task ID</u>	<u>Name</u>	<u>Revision</u>	<u>Date</u>	<u>Next Date</u>
NGA-046	Maintaining service and curb boxes	1	05/28/2003	05/28/2008
NGA-047	Abandon a gas service line	1	10/28/2002	10/28/2007
NGA-048	Extend or cut back on an existing service line	1	10/28/2002	10/28/2007
NGA-049	Joining pipe materials other than plastic or steel during	1	04/04/2005	04/03/2008
NGA-050	Joining plastic pipe for maintenance	1	04/04/2005	04/04/2006
NGA-051	Install bolt-on tee on plastic pipe	1	04/04/2005	04/04/2006
NGA-052	Inspect plastic pipe fusion joint - maintenance	1	04/04/2005	04/04/2006
NGA-070	Abnormal Operating Conditions /Properties of Natural Gas	1	05/24/2004	05/24/2007
NGA-PJQ-01	Butt Fusion	1	04/04/2005	04/04/2006
NGA-PJQ-02	Socket Fusion	1	04/04/2005	04/04/2006
NGA-PJQ-03	Saddle Fusion	1	04/04/2005	04/04/2006
NGA-PJQ-04	Electro Fusion - Saddle	1	04/04/2005	04/04/2006
NGA-PJQ-05	Electro Fusion - Coupling	1	04/04/2005	04/04/2006
NGA-PJQ-06	Mechanical Coupling - Bolt On	1	04/04/2005	04/04/2006
NGA-PJQ-07	Mechanical Coupling - Stab	1	04/04/2005	04/04/2006
NGA-PJQ-08	Mechanical Coupling - Compression	1	04/04/2005	04/04/2006
NGA-PJQ-09	Mechanical Coupling - Thread	1	04/04/2005	04/04/2006
NGA-PJQ-10	Soil Compaction	1	04/04/2005	04/04/2006

EMPLOYEE QUALIFICATIONS

02/17/2006 Keyspan Energy Delivery New England

Employee ID: 23449 First Name: Leonard Last: Sorensen
Title: Tech B Technician B Phone:
Company: Keyspan Energy Delivery New England
Company: BGC State: MA
Location: RIVER
Department: PCS
Union Code: Union

QUALIFICATIONS

Task ID	Name	Revision	Date	Next Date
NGA-006	Inspecting for atmospheric corrosion	1	05/25/2005	05/25/2010
NGA-008	Visually inspecting for internal corrosion	1	05/25/2005	05/25/2010
NGA-011	Applying pipe coating in the field for maintenance	1	10/28/2002	10/28/2007
NGA-012	Cleaning and either coating pipe for atmospheric corrosion	1	10/28/2002	10/28/2007
NGA-014	Installing/replacing an anode on an existing line	1	10/28/2002	10/28/2007
NGA-015	Installing/replacing and testing electrical isolation couplings	1	05/29/2003	05/29/2008
NGA-016	Install/replace a corrosion test station on an existing	1	10/28/2002	10/28/2007
NGA-017	Repair coating on an existing steel main	1	10/28/2002	10/28/2007
NGA-020	Investigating leak/odor complaints	1	05/24/2004	05/24/2007
NGA-021	Line locating and mark out	1	05/25/2005	05/24/2008
NGA-022	Inspection of 3rd party excavations for damage prevention	1	10/28/2002	10/28/2007
NGA-023	Inspecting the condition of exposed pipe or pipe coating	1	05/29/2003	05/29/2008
NGA-024	Inspect pipe at a maintenance job for damage	1	05/29/2003	05/29/2008
NGA-029	Repair and distribution line leaks	1	05/24/2004	05/24/2007
NGA-030	Repair a non-leaking damaged pipe	1	05/24/2004	05/24/2009
NGA-032	Purging air from pipeline	1	10/28/2002	10/28/2007
NGA-033	Purging gas from pipeline	1	10/28/2002	10/28/2007
NGA-034	Performing pressure test on existing pipe	1	10/28/2002	10/28/2007
NGA-035	Stopping gas flow	1	05/25/2005	05/24/2008
NGA-036	Abandonment or Deactivation of Facilities	1	05/25/2005	05/24/2008
NGA-037	Tapping pipelines under pressure	1	05/24/2004	05/24/2007
NGA-039	Remove service tee or fitting from steel or cast iron mains	1	05/25/2005	05/25/2010
NGA-040	Replace a section of existing tracer wire	1	05/29/2003	05/29/2008
NGA-041	Inspect valves	1	05/29/2003	05/29/2008
NGA-042	Repair and maintain distribution line valves	1	05/29/2003	05/29/2008
NGA-043	Lubricate distribution line valves	1	05/29/2003	05/29/2008
NGA-045	Restore service	1	10/28/2002	10/28/2007

EMPLOYEE QUALIFICATIONS

02/17/2006 Keyspan Energy Delivery New England

Employee ID: 23449 First Name: Leonard Last: Sorensen
Title: Tech B Technician B Phone:
Company: Keyspan Energy Delivery New England
Company: BGC State: MA
Location: RIVER
Department: PCS
Union Code: Union

QUALIFICATIONS

<u>Task ID.</u>	<u>Name</u>	<u>Revision</u>	<u>Date</u>	<u>Next Date</u>
NGA-046	Maintaining service and curb boxes	1	05/29/2003	05/29/2008
NGA-047	Abandon a gas service line	1	10/28/2002	10/28/2007
NGA-048	Extend or cut back on an existing service line	1	10/28/2002	10/28/2007
NGA-049	Joining pipe materials other than plastic or steel during	1	04/04/2005	04/03/2008
NGA-050	Joining plastic pipe for maintenance	1	04/04/2005	04/04/2006
NGA-051	Install bolt-on tee on plastic pipe	1	04/04/2005	04/04/2006
NGA-052	Inspect plastic pipe fusion joint - maintenance	1	04/04/2005	04/04/2006
NGA-070	Abnormal Operating Conditions /Properties of Natural Gas	1	05/24/2004	05/24/2007
NGA-PJQ-01	Butt Fusion	1	04/04/2005	04/04/2006
NGA-PJQ-02	Socket Fusion	1	04/04/2005	04/04/2006
NGA-PJQ-03	Saddle Fusion	1	04/04/2005	04/04/2006
NGA-PJQ-04	Electro Fusion - Saddle	1	04/04/2005	04/04/2006
NGA-PJQ-05	Electro Fusion - Coupling	1	04/04/2005	04/04/2006
NGA-PJQ-06	Mechanical Coupling - Bolt On	1	04/04/2005	04/04/2006
NGA-PJQ-07	Mechanical Coupling - Stub	1	04/04/2005	04/04/2006
NGA-PJQ-08	Mechanical Coupling - Compression	1	04/04/2005	04/04/2006
NGA-PJQ-09	Mechanical Coupling - Thread	1	04/04/2005	04/04/2006
NGA-PJQ-10	Soil Compaction	1	04/04/2005	04/04/2006

EMPLOYEE QUALIFICATIONS

02/17/2006 Keyspan Energy Delivery New England

Employee ID: 23058 First Name: Andrew Last: Cross
Title: Tech B Technician B Phone:
Company: Keyspan Energy Delivery New England
Company: BGC State: MA
Location: RIVER
Department: PCS
Union Code: Union

QUALIFICATIONS

<u>Task ID</u>	<u>Name</u>	<u>Revision</u>	<u>Date</u>	<u>Next Date</u>
NGA-006	Inspecting for atmospheric corrosion	1	05/25/2005	05/25/2010
NGA-008	Visually inspecting for internal corrosion	1	05/25/2005	05/25/2010
NGA-011	Applying pipe coating in the field for maintenance	1	10/28/2002	10/28/2007
NGA-012	Cleaning and either coating pipe for atmospheric corrosion	1	10/28/2002	10/28/2007
NGA-014	Installing/replacing an anode on an existing line	1	10/28/2002	10/28/2007
NGA-015	Installing/replacing and testing electrical isolation couplings	1	06/10/2003	06/10/2008
NGA-016	Install/replace a corrosion test station on an existing	1	10/28/2002	10/28/2007
NGA-017	Repair coating on an existing steel main	1	10/28/2002	10/28/2007
NGA-020	Investigating leak/odor complaints	1	05/24/2004	05/24/2007
NGA-021	Line locating and mark out	1	05/25/2005	05/24/2008
NGA-022	Inspection of 3rd party excavations for damage prevention	1	10/28/2002	10/28/2007
NGA-023	Inspecting the condition of exposed pipe or pipe coating	1	06/10/2003	06/10/2008
NGA-024	Inspect pipe at a maintenance job for damage	1	06/10/2003	06/10/2008
NGA-029	Repair and distribution line leaks	1	05/24/2004	05/24/2007
NGA-030	Repair a non-leaking damaged pipe	1	05/24/2004	05/24/2009
NGA-032	Purging air from pipeline	1	10/28/2002	10/28/2007
NGA-033	Purging gas from pipeline	1	10/28/2002	10/28/2007
NGA-034	Performing pressure test on existing pipe	1	10/28/2002	10/28/2007
NGA-035	Stopping gas flow	1	05/25/2005	05/24/2008
NGA-036	Abandonment or Deactivation of Facilities	1	05/25/2005	05/24/2008
NGA-037	Tapping pipelines under pressure	1	05/24/2004	05/24/2007
NGA-039	Remove service tee or fitting from steel or cast iron mains	1	05/25/2005	05/25/2010
NGA-040	Replace a section of existing tracer wire	1	06/10/2003	06/10/2008
NGA-041	Inspect valves	1	06/10/2003	06/10/2008
NGA-042	Repair and maintain distribution line valves	1	06/10/2003	06/10/2008
NGA-043	Lubricate distribution line valves	1	06/10/2003	06/10/2008
NGA-045	Restore service	1	10/28/2002	10/28/2007

EMPLOYEE QUALIFICATIONS

02/17/2006 Keyspan Energy Delivery New England

Employee ID: 23058 **First Name:** Andrew **Last:** Cross
Title: Tech B Technician B **Phone:**
Company: Keyspan Energy Delivery New England
Company: BGC **State:** MA
Location: RIVER
Department: PCS
Union Code: Union

QUALIFICATIONS

<u>Task ID</u>	<u>Name</u>	<u>Revision</u>	<u>Date</u>	<u>Next Date</u>
NGA-046	Maintaining service and curb boxes	1	06/10/2003	06/10/2008
NGA-047	Abandon a gas service line	1	10/28/2002	10/28/2007
NGA-048	Extend or cut back on an existing service line	1	10/28/2002	10/28/2007
NGA-049	Joining pipe materials other than plastic or steel during	1	04/04/2005	04/03/2008
NGA-050	Joining plastic pipe for maintenance	1	04/04/2005	04/04/2006
NGA-051	Install bolt-on tee on plastic pipe	1	04/04/2005	04/04/2006
NGA-052	Inspect plastic pipe fusion joint - maintenance	1	04/04/2005	04/04/2006
NGA-070	Abnormal Operating Conditions /Properties of Natural Gas	1	05/24/2004	05/24/2007
NGA-PJQ-01	Butt Fusion	1	04/04/2005	04/04/2006
NGA-PJQ-02	Socket Fusion	1	04/04/2005	04/04/2006
NGA-PJQ-03	Saddle Fusion	1	04/04/2005	04/04/2006
NGA-PJQ-04	Electro Fusion - Saddle	1	04/04/2005	04/04/2006
NGA-PJQ-05	Electro Fusion - Coupling	1	04/04/2005	04/04/2006
NGA-PJQ-06	Mechanical Coupling - Bolt On	1	04/04/2005	04/04/2006
NGA-PJQ-07	Mechanical Coupling - Stab	1	04/04/2005	04/04/2006
NGA-PJQ-08	Mechanical Coupling - Compression	1	04/04/2005	04/04/2006
NGA-PJQ-09	Mechanical Coupling - Thread	1	04/04/2005	04/04/2006
NGA-PJQ-10	Soil Compaction	1	04/04/2005	04/04/2006

EMPLOYEE QUALIFICATIONS

02/17/2006 Keyspan Energy Delivery New England

Employee ID: 23460 First Name: Armida Last: Armstrong
Title: Tech B Technician B Phone:
Company: Keyspan Energy Delivery New England
Company: BGC State: MA
Location: RIVER
Department: PCS
Union Code: Union

QUALIFICATIONS

<u>Task ID</u>	<u>Name</u>	<u>Revision</u>	<u>Date</u>	<u>Next Date</u>
NGA-006	Inspecting for atmospheric corrosion	1	05/26/2005	05/26/2010
NGA-008	Visually inspecting for internal corrosion	1	05/26/2005	05/26/2010
NGA-011	Applying pipe coating in the field for maintenance	1	10/28/2002	10/28/2007
NGA-012	Cleaning and either coating pipe for atmospheric corrosion	1	10/28/2002	10/28/2007
NGA-014	Installing/replacing an anode on an existing line	1	10/28/2002	10/28/2007
NGA-015	Installing/replacing and testing electrical isolation couplings	1	05/29/2003	05/29/2008
NGA-016	Install/replace a corrosion test station on an existing	1	10/28/2002	10/28/2007
NGA-017	Repair coating on an existing steel main	1	10/28/2002	10/28/2007
NGA-020	Investigating leak/odor complaints	1	05/25/2004	05/25/2007
NGA-021	Line locating and mark out	1	05/26/2005	05/25/2008
NGA-022	Inspection of 3rd party excavations for damage prevention	1	10/28/2002	10/28/2007
NGA-023	Inspecting the condition of exposed pipe or pipe coating	1	05/29/2003	05/29/2008
NGA-024	Inspect pipe at a maintenance job for damage	1	05/29/2003	05/29/2008
NGA-029	Repair and distribution line leaks	1	07/09/2004	07/09/2007
NGA-030	Repair a non-leaking damaged pipe	1	07/09/2004	07/09/2009
NGA-032	Purging air from pipeline	1	10/28/2002	10/28/2007
NGA-033	Purging gas from pipeline	1	10/28/2002	10/28/2007
NGA-034	Performing pressure test on existing pipe	1	10/28/2002	10/28/2007
NGA-035	Stopping gas flow	1	05/26/2005	05/25/2008
NGA-036	Abandonment or Deactivation of Facilities	1	05/26/2005	05/25/2008
NGA-037	Tapping pipelines under pressure	1	05/25/2004	05/25/2007
NGA-039	Remove service tee or fitting from steel or cast iron mains	1	05/26/2005	05/26/2010
NGA-040	Replace a section of existing tracer wire	1	05/29/2003	05/29/2008
NGA-041	Inspect valves	1	05/29/2003	05/29/2008
NGA-042	Repair and maintain distribution line valves	1	05/29/2003	05/29/2008
NGA-043	Lubricate distribution line valves	1	05/29/2003	05/29/2008
NGA-045	Restore service	1	10/28/2002	10/28/2007

EMPLOYEE QUALIFICATIONS

02/17/2006 Keyspan Energy Delivery New England

Employee ID: 23460 **First Name:** Armida **Last:** Armstrong
Title: Tech B Technician B **Phone:**
Company: Keyspan Energy Delivery New England
Company: BGC **State:** MA
Location: RIVER
Department: PCS
Union Code: Union

QUALIFICATIONS

<u>Task ID</u>	<u>Name</u>	<u>Revision</u>	<u>Date</u>	<u>Next Date</u>
NGA-046	Maintaining service and curb boxes	1	05/29/2003	05/29/2008
NGA-047	Abandon a gas service line	1	10/28/2002	10/28/2007
NGA-048	Extend or cut back on an existing service line	1	10/28/2002	10/28/2007
NGA-049	Joining pipe materials other than plastic or steel during	1	04/04/2005	04/03/2008
NGA-050	Joining plastic pipe for maintenance	1	04/04/2005	04/04/2006
NGA-051	Install bolt-on tee on plastic pipe	1	04/04/2005	04/04/2006
NGA-052	Inspect plastic pipe fusion joint - maintenance	1	04/04/2005	04/04/2006
NGA-070	Abnormal Operating Conditions /Properties of Natural Gas	1	07/09/2004	07/09/2007
NGA-PJQ-01	Butt Fusion	1	04/04/2005	04/04/2006
NGA-PJQ-02	Socket Fusion	1	04/04/2005	04/04/2006
NGA-PJQ-03	Saddle Fusion	1	04/04/2005	04/04/2006
NGA-PJQ-04	Electro Fusion - Saddle	1	04/04/2005	04/04/2006
NGA-PJQ-05	Electro Fusion - Coupling	1	04/04/2005	04/04/2006
NGA-PJQ-06	Mechanical Coupling - Bolt On	1	04/04/2005	04/04/2006
NGA-PJQ-07	Mechanical Coupling - Stab	1	04/04/2005	04/04/2006
NGA-PJQ-08	Mechanical Coupling - Compression	1	04/04/2005	04/04/2006
NGA-PJQ-09	Mechanical Coupling - Thread	1	04/04/2005	04/04/2006
NGA-PJQ-10	Soil Compaction	1	04/04/2005	04/04/2006

EMPLOYEE QUALIFICATIONS**02/17/2006 Keyspan Energy Delivery New England**

Employee ID: 22596 **First Name:** Robert **Last:** Porter
Title: Fitter "B" Fitter B **Phone:**
Company: Keyspan Energy Delivery New England
Company: BGC **State:** MA
Location: RIVER
Department: Fitting
Union Code: Union

QUALIFICATIONS

<u>Task ID</u>	<u>Name</u>	<u>Revision</u>	<u>Date</u>	<u>Next Date</u>
NGA-006	Inspecting for atmospheric corrosion	1	10/28/2002	10/28/2007
NGA-008	Visually inspecting for internal corrosion	1	10/28/2002	10/28/2007
NGA-011	Applying pipe coating in the field for maintenance	1	10/28/2002	10/28/2007
NGA-012	Cleaning and either coating pipe for atmospheric corrosion	1	10/28/2002	10/28/2007
NGA-017	Repair coating on an existing steel main	1	10/28/2002	10/28/2007
NGA-018	Conducting gas leakage surveys	1	10/28/2002	10/28/2007
NGA-019	Patrolling and inspecting pipeline	1	10/28/2002	10/28/2007
NGA-020	Investigating leak/odor complaints	1	10/06/2005	10/05/2008
NGA-022	Inspection of 3rd party excavations for damage prevention	1	10/28/2002	10/28/2007
NGA-023	Inspecting the condition of exposed pipe or pipe coating	1	10/28/2002	10/28/2007
NGA-024	Inspect pipe at a maintenance job for damage	1	10/28/2002	10/28/2007
NGA-041	Inspect valves	1	10/28/2002	10/28/2007
NGA-042	Repair and maintain distribution line valves	1	10/28/2002	10/28/2007
NGA-043	Lubricate distribution line valves	1	10/28/2002	10/28/2007
NGA-045	Restore service	1	10/28/2002	10/28/2007
NGA-046	Maintaining service and curb boxes	1	10/28/2002	10/28/2007
NGA-070	Abnormal Operating Conditions /Properties of Natural Gas	1	10/06/2005	10/05/2008

EMPLOYEE QUALIFICATIONS

02/17/2006 Keyspan Energy Delivery New England

Employee ID: 22574 First Name: Mark Last: Tracey
Title: Fitter "B", Fitter B Phone:
Company: Keyspan Energy Delivery New England
Company: BGC State: MA
Location: RIVER
Department: Fitting
Union Code: Union

QUALIFICATIONS

<u>Task ID</u>	<u>Name</u>	<u>Revision</u>	<u>Date</u>	<u>Next Date</u>
NGA-006	Inspecting for atmospheric corrosion	1	10/28/2002	10/28/2007
NGA-008	Visually inspecting for internal corrosion	1	10/28/2002	10/28/2007
NGA-011	Applying pipe coating in the field for maintenance	1	10/28/2002	10/28/2007
NGA-012	Cleaning and either coating pipe for atmospheric corrosion	1	10/28/2002	10/28/2007
NGA-017	Repair coating on an existing steel main	1	10/28/2002	10/28/2007
NGA-018	Conducting gas leakage surveys	1	10/28/2002	10/28/2007
NGA-019	Patrolling and inspecting pipeline	1	10/28/2002	10/28/2007
NGA-020	Investigating leak/odor complaints	1	10/07/2005	10/06/2008
NGA-022	Inspection of 3rd party excavations for damage prevention	1	10/28/2002	10/28/2007
NGA-023	Inspecting the condition of exposed pipe or pipe coating	1	10/28/2002	10/28/2007
NGA-024	inspect pipe at a maintenance job for damage	1	10/28/2002	10/28/2007
NGA-041	Inspect valves	1	10/28/2002	10/28/2007
NGA-042	Repair and maintain distribution line valves	1	10/28/2002	10/28/2007
NGA-043	Lubricate distribution line valves	1	10/28/2002	10/28/2007
NGA-045	Restore service	1	10/28/2002	10/28/2007
NGA-046	Maintaining service and curb boxes	1	10/28/2002	10/28/2007
NGA-070	Abnormal Operating Conditions /Properties of Natural Gas	1	10/06/2005	10/05/2008