COMMONWEALTH OF MASSACHUSETTS

DEPARTMENT OF
TELECOMMUNICATIONS & ENERGY

PIPELINE ENGINEERING AND SAFETY DIVISION

INCIDENT REPORT

9 Rockwood Street, Walpole, Massachusetts
April 13, 2004

PIPELINE ENGINEERING AND SAFETY DIVISION

Accident File

Location: Walpole, Massachusetts

Date of Accident: April 13, 2004

Gas Company: Bay State Gas Company

Property Damage: Over $150,000 *

Injuries: 0

Report Issued - June 2006

* Estimated by Bay State Gas Company

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I. INTRODUCTION

A. Scope of this Investigation

The Massachusetts Department of Telecommunications and Energy ("Department"), Division of Pipeline Engineering and Safety ("Division"), pursuant to G.L. c. 164, § 105A and a Federal Certification Agreement as provided for in 49 U.S.C.§ 60105, has investigated a natural gas ("gas") release at 9 Rockwood Street, Walpole, that occurred on April 13, 2004 ("incident").[1] The incident contributed to a fire and $150,000 in property damage to the dwelling as estimated by Bay State Gas Company ("BSG") (Exh. 1). The pipeline involved was owned and operated by BSG.

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

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

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[1] Incident means any of the following events:

(1) An event that involves a release of gas from a pipeline or 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, or both, 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 judgment of the operator, even though it did not meet the criteria of paragraphs (1) or (2)." 49 C.F.R. § 191.3.

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

The Department has established procedures for determining the nature and extent of violations of codes and regulations pertaining to 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 Division also enforces the U.S. DOT safety standards for gas pipeline systems as set forth in 49 C.F.R. Part 192 (Part 192).

B. Overview of Incident

On April 13, 2004, at approximately 4:53 p.m., the Walpole Fire Department received a fire alarm for 9 Rockwood Street, Walpole. The homeowner both discovered and reported the fire. The fire department responded and arrived at 4:56 p.m. (Exh. 2). Upon arriving, fire was observed exiting the right rear basement window.

The homeowner had been removing the old siding and installing Styrofoam insulation to the exterior of the structure. He was working on the opposite side of the wall of the fire origin.

The fire fighters entered the building through the rear basement door. Seconds after putting the fire out there was an explosion. Two Walpole fire fighters that were in the structure at the time of the explosion suffered minor injuries and were taken to the hospital. The force of the explosion blew out windows and the garage door. It also

moved the rear wall off the foundation. The Walpole Fire Department shut off the underground curb valve using a wrench. They then extinguished the fire.

The fire department notified BSG at 5:06 p.m. BSG notified the Division by telephone at approximately 5:55 p.m.[2] that a fire and explosion occurred at 9 Rockwood Street, Walpole.

II. THE DIVISION INVESTIGATION

A. Description of the Site

The residential single family home located at 9 Rockwood Street, Walpole was a wood frame two level with a split foyer. The exterior consisted of wood shingles. The fire originated in a utility room located at the right rear of the structure. The utility room housed the gas furnace, gas hot water heater, gas meter and service regulator[3], the electric service panel and several appliances. (Exh. 3). The gas service line[4] entered the utility room underground through the foundation sidewall.

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2 In a letter to all operators, the Director of the Division has requested that operators inform the Department of any incident promptly, but no more that two hours after discovery of an incident.

3 A service regulator is a valve which reduces the pressure in the service line from the pressure in the main to the pressure provided to the customer.

4 A service line is a distribution line that transports gas from a common source of supply to a customer meter. 49 C.F.R. § 192.3.

The one inch coated steel service was installed on October 25, 1960 by Brockton Taunton Gas Company. The two inch coated steel gas main[5] was also installed in 1960. The operating pressure at the time of the incident was 48.9 psig[6] recorded at the Walpole telemeter station at 7:00 p.m.

B. Description of the Scene

On April 13, 2004, at approximately 6:45 p.m., an investigator from the Division arrived at 9 Rockwood Street, Walpole, to investigate the explosion. Representatives from BSG, the Walpole Fire Department, and the State Fire Marshal office were already at the scene.

The house had extensive fire damage in the utility room and the surrounding area (Exh. 4). The electric panel and wiring had been completely burned. The gas meter had melted and the service regulator was partially melted (Exhs. 5,6). Most of the basement windows and the garage door had been blown out (Exh. 7). The rear house wall was off the foundation (Exh. 8).

The Division investigator requested that BSG leak survey the service line to 9 Rockwood Street and the main in front of the house. No leaks were found by this survey.

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5 A main is a distribution line that serves as a common source of supply for more than one service line. 49 C.F.R. § 192.3.

6 PSIG – pounds per square inch guage refers to the pressure expressed in pounds exerted on one square inch of surface area. The designation "Guage" indicates the readings are already adjusted to ignore the surrounding atmospheric pressure, which is 14.7 psi at sea level. If psig guage were not connected to any pressure source it would read zero even thought it is actually sensing 14.7 psi at sea level.

BSG and their consultant, Surveys and Analysis Inc., had already leak surveyed the rest of the main and the surrounding area. BSG reported no leakage in the area (Exh. 9).

The Division investigator requested that the gas service line be pressure tested from the street area to inside the house. The gas meter, regulator, and piping inside the house could not be part of the test due to their damaged condition. The service line was sealed inside the house and disconnected from the main. The pressure test was conducted at 50 psig for 16 minutes (Exh. 10 & 11). There was no pressure drop observed, indicating no leakage.

The Walpole Fire Department took possession of the gas meter, regulator and inlet piping.

C. Bay State Gas Company

1. Service History

Bay State Gas Company's records from 1997 to 2004 indicate that there were no service calls for gas odors or equipment maintenance. The records indicate that the service was locked and unlocked in 1999. On April 23, 2003, BSG replaced the meter. The work order for this date indicates that a leak survey was completed and the results were negative (Exh.12).

2. Leakage History of the Service Line

Bay State Gas Company's records indicate that the service line was leak surveyed on June 6, 2003, the results were negative.

Federal safety regulations require that services be leak surveyed at 3 year intervals[7] (Exh.13).

3. Leakage History of the Main

Bay State Gas Company's records indicate that the main was leak surveyed July 23, 2003, the results were negative. The main was also surveyed on January 25, 2004, as part of the companies' special winter survey, the results were negative. Federal safety regulations require that mains be leak surveyed at 3 year intervals (Exh.14).

4. Leak Repairs on Rockwood Street

In 1983 two leak clamps were installed in front of 7 Rockwood Street. Bay State Gas Company's records indicate that on February 11, 2003 these two clamps leaked and were replaced (Exh.15).

5. Operating Pressure

Bay State Gas Company's records indicate that the pressure at the time of the fire and explosion (17:00) was 50.222 psi. The pressure was recorded at Industrial Road Walpole. The pressure at 19:00 was 48.933 psi (Exh. 16).

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[7] A leakage survey with leak detector equipment must be conducted outside business districts as frequently as necessary, but at least once every 5 calendar years at intervals not exceeding 63 months. However, for cathodically unprotected distribution lines subject to § 192.465(e) on which electrical surveys for corrosion are impractical, a leakage survey must be conducted at least once every 3 calendar years at intervals not exceeding 39 months. 49 C.F.R. § 192.723.

6. Odor Testing

Bay State records indicate that an odorant test was conducted on April 14, 2004 at 16 Rockwood Street, Walpole. The level at which there was a distinct odor of gas was .09% gas-in-air (Exh. 17). Massachusetts safety regulations require that gas be odorized so that it can be detected at a level of 0.15% gas-in-air or less.[8]

7. Corrosion Control Records

Bay State stated that there are no corrosion monitoring records, for its interior piping at 9 Rockwood Street. Bay State does not perform corrosion monitoring of interior company owned piping. Federal safety regulations require inspections of above ground piping every 3 years.[9]

D. The Homeowner

Three people lived in the house. The homeowner stated that he was installing rigid insulation on the exterior of the house in preparation for the house to be sided by a contractor. The work being done on the date of the incident was under the deck/porch behind the house, out of the rain. The existing siding was being removed before the insulation was installed.

He stated that he heard a hissing noise and entered the house to investigate. Once inside, he said he saw flickering or shadows in the utility room. He saw this between the crack in the bi-fold door. Upon entering the utility room, he saw a fire in the corner, on the floor, under

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8 See 220 C.M.R. § 101.06 (20) (a): "Odorization of Gas."

9 (a) Each operator must inspect each pipeline or portion of pipeline that is exposed to the atmosphere for evidence of atmospheric corrosion, as follows: If the pipeline is located onshore, then the frequency of inspection is "at least once every 3 calendar years, but with intervals not exceeding 39 months."
49 C.F.R. § 192.481.

where the gas service line enters the house (Exh. 18, at 2). He stated that it looked like the cement floor was on fire (id.). This is also where the gas regulator is located. He stated that the fire was yellow, about knee high, confined to the corner and was lazy. He said that there was no noticeable smoke or noise (id.). The area he was viewing is small, between the freezer, the foundation wall and the food shelves. He then went to the garage to get a bucket to fill with water. While filling the bucket with water in the downstairs bathroom, he heard the smoke alarm sound. He again looked into the utility room and saw that the flames were now 4-5 feet high. After getting his phone from the kitchen, he left the house. He then called the Walpole Fire Department. He went around to the back of the house and smashed the utility room window with a rock. He tried to spray water on the fire with a garden hose, but was not able to get much water out of the hose. At this point, he said, the fire was hitting the ceiling and there was a lot of smoke. The owner also stated that the heating system is on an automatic setback thermostat. It was set to come on at 4:30 p.m. every workday.

E. The Walpole Fire Department

Four WFD firefighters entered the house, in full gear, through the rear basement door. Once inside, they saw the utility room fully engulfed in fire. They stated that the large amount of smoke made it dark. They said that the wires running along the back of the house at the ceiling were popping due to insulation melting. They sprayed water on this area to knock the fire down. They then sprayed the entire utility room and the fire went out.

A few seconds later, there was an explosion, accompanied by a flash. At this time, the WFD realized that gas had been feeding the fire. The curb valve on the gas service line was

used to shut off the gas by the WFD. Using a tool that they had on the fire truck, they were able to reach the valve down in the valve box. The fire was then extinguished. Two of the four WFD firefighters went to the hospital to be checked because they were in the explosion area. Neither one was admitted.

F. Examination of the Pipe Sections

Massachusetts Material Research, Inc. ("MMR") conducted the failure analysis of the interior piping and fittings from 9 Rockwood Street.[10] The pipe was recovered by the D.T.E. and stored at the Walpole Police Department evidence room before being taken to MMR. The piping and fittings consisted of sections of high pressure piping and a valve, which were located upstream of the regulator. The low pressure piping from the regulator to the meter inlet, the regulator vent pipe, and the meter were also part of the evidence sent MMR. The purpose of the testing was to document the condition of all the interior facilities and to attempt to determine a cause of the incident.

MMR performed debris analysis, leak testing, radiographic examination, microscopic examination, fracture surface conditions and chemical analysis. In addition, MMR evaluated the structure of the facilities in the heat affected areas.

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[10] Copies of the MMR report can be obtained by contacting: Veda-Anne Ulcickas, Massachusetts Materials Research, Inc., P.O. Box 810, 1500 Century Drive, West Boylston, MA 01583.

Based on the test results, MMR concluded the following:

- Leak testing of the submitted incident components (except for the incident meter and regulator) produced only leakage consistent with a fire-exposed piping system. The shutoff valve and the regulator "T" fitting exhibited no leakage during this testing.

- Chemical analysis of soot samples from the incident piping and regulator revealed the presence of a long chain aliphatic hydrocarbon similar to mineral spirits, and the presence of an aliphatic ester oil (commonly found in paint products). Both substances are flammable.

- Examination of fractures located on the incident regulator revealed that substance containing these aliphatic compounds that had spilled onto the regulator was not present on the fractures. In fact, this spilled substance was present on the regulator vent side rim surface on both sides of two regions of the vent fracture, but did not spill onto the fracture at either region. This indicates that the substance spilled prior to the vent-side fracture occurring.

- Scene photographs taken by the Walpole Fire Department show the charred remains of wooden shelving and a large can under the regulator after the fire. The can appears large enough to have caused the dent on the vent side of the regulator. This indicates that the dent was caused as a result of the shelving collapse after the fire was already in progress.

- From this evidence, combined with the witness statement that at the beginning of the incident a fire was located underneath the regulator and made the cement floor appear to be burning, it is logical to conclude that a substance related to painting (i.e., paint thinner or similar), spilled onto the regulator and dripped onto the utility room floor. This substance then ignited.

- A gas fire due to a damaged regulator would present a very different appearance from the "lazy" fire described by the homeowner. Were regulator damage the cause of the fire, a gas "jet" would escape at inlet supply line pressure. If ignited, such a flame would be torch-like, not lazy, and would be seen to emanate from the damaged region instead of being located on the cement floor of the utility room.

III. FINDINGS AND CONCLUSIONS

A. Findings

(1) Brockton Taunton Gas Company installed a two-inch diameter steel main under Rockwood Street, Walpole in 1960.

(2) A one-inch diameter coated steel service line connected the house at 9 Rockwood Street to the two-inch main on Rockwood Street.

(3) Bay State Gas Company installed the service line on October 25, 1960.

(4) The customer meter and regulator were located inside the house.

(5) The service had 30 inches of cover at the main in the street.

(6) There is no history of service calls to 9 Rockwood Street, Walpole.

(7) Bay State Gas Company was at 9 Rockwood Street, Walpole for routine maintenance on June 23, 2003.

(8) There is no history of leaks on the service to 9 Rockwood Street, Walpole or on the main in front of 9 Rockwood Street, Walpole.

(9) The odorant levels of the gas were in compliance with state and federal regulations.

(10) Corrosion on the interior piping was consistent with exposure to water and combustion gases of a fire.

(11) At the time of the fire and explosion, the homeowner was working on the opposite side of the wall from where the fire originated and where the gas facilities were located.

(12) The homeowner both discovered and reported the fire.

(13) At the time the Walpole Fire Department entered the house, they were unaware that the gas service line existed and entered the house in full fire fighting equipment.

(14) Leakage found during the testing on the interior piping was consistent with damage caused by fire exposure.

(15) There was wood shelving above the regulator on both walls and plastic shelving next to the regulator. The shelving had miscellaneous items including cans of food.

(16) Residue on the piping and regulator was from a flammable substance.

(17) Residue of the flammable substance was not present on the fracture surfaces of the regulator.

B. Conclusions

The MMR report states that "Chemical analysis of soot samples from the incident piping and regulator revealed the presence of a long chain aliphatic hydrocarbon similar to mineral spirits, and the presence of an aliphatic ester oil (commonly found in paint products). Both substances are flammable. Examination of fractures located on the incident regulator revealed that substance containing these aliphatic compounds that had spilled onto the regulator was not present on the fractures."

The Division concludes that there was a spill of a flammable liquid onto the regulator and the floor. The flammable liquid then ignited. This fire apparently caused, among other things, the shelving near the regulator to collapse. The damage to the regulator was probably caused by a falling object. The fire and damage allowed gas to leak from the regulator. The explosion was caused by the accumulation of gas in the utility room after the initial fire was extinguished, and after the damage to the regulator occurred.

EXHIBIT LIST FOR 9 ROCKWOOD STREET INCIDENT REPORT

1. Report of Utilities Service Incident
2. Walpole Fire Department Report
3. Schematic of Utility Room
4. Damage in the Utility Room
5. The Gas Meter
6. The Gas Regulator
7. The Front of the House
8. The Rear of the House at the Utility Room.
9. Leak Surveys Conducted on April 13, 2004
10. Work Order Showing Pressure Test
11. Pressure Gauge
12. Work Order for Meter Change and Leak Survey
13. Service Line Leak Survey on June 6, 2003
14. Main Leak Surveys - July 23, 2003 and Winter Leak Survey - January 25, 2004
15. Work Order of Leak Repair on February 11, 2003
16. Record of Pressure at the Time of the Incident
17. Record of Odor Test
18. Fire Investigation Summary Report

Exhibit 1

Report of Utilities Service Incident

The Commonwealth of Massachusetts

Department of Telecommunications and Energy

Company: BAY STATE GAS COMPANY Date: April 13, 2004

Report of Utilities Service Incident

Type of Incident: Outage Accident Other Fire / Explosion

Service Affected: GAS

Location of Incident: **Initial Outage:**

9 Rockwood Street, Walpole, MA 02081

Date and Time of Incident: **Service Restored:**

April 13, 2004 @ 5:05 PM

Description of Incident:

Fire and explosion. Single family wood frame residential dwelling.

Personal Injury or Property Damage: No inpatient hospitalization.
Estimate $150,000 property damage

Duration of Incident:

Customers Affected: One (1) **Customer Hours:**

Comments: Fire and explosion. Single family wood frame residential dwelling.
State Fire Marshall investigating. Cause and origin undetermined at this time.

Date Reported: 4/13/2004 **Reported By:** Gail Rooslet

Time Reported: 5:55 PM **Received By:** Paul Grieco

Exhibit 2

Walpole Fire Department Report

FDID * 21307 | State * MA | Incident Date * 04 13 2004 | Station 1 | Incident Number * 04-0000724 | Exposure * 000 | [X] Change [ ] No Activity | Basic

B Location *

[ ] Check this box to Indicate that the address for this incident is provided on the Wildland Fire Module In Section B "Alternative Location Specification". Use only for Wildland fires.

Census Tract 4111 - 00

[X] Street address
[ ] Intersection
[ ] In front of
[ ] Rear of
[ ] Adjacent to
[ ] Directions

Number/Milepost: 9 | Prefix: | Street or Highway: Rockwood | Street Type: ST | Suffix:

Apt./Suite/Room: | City: Walpole | State: MA | Zip Code: 02081 -

Cross street or directions, as applicable:

C Incident Type *

111 Building fire

Incident Type

D Aid Given or Received *

1 [X] Mutual aid received
2 [ ] Automatic aid recv.
3 [ ] Mutual aid given
4 [ ] Automatic aid given
5 [ ] Other aid given
N [ ] None

Their FDID: 21208 | Their State:

Their Incident Number:

E1 Date & Times

Midnight is 0000

Check boxes if dates are the same as Alarm Date.

	Month	Day	Year	Hr Min Sec
ALARM always required. Alarm *	04	13	2004	16:53:00
[ ] Arrival * (ARRIVAL required, unless canceled or did not arrive)	04	13	2004	16:56:00
[ ] Controlled (CONTROLLED Optional, Except for wildland fires)				
[ ] Last Unit Cleared (LAST UNIT CLEARED, required except for wildland fires)	04	13	2004	23:00:00

E2 Shift & Alarms

Local Option

Shift or Platoon: 3 | Alarms: 01 | District: E

E3 Special Studies

Local Option

Special Study ID#: | Special Study Value:

F Actions Taken *

52 Forcible entry — Primary Action Taken (1)

11 Extinguish — Additional Action Taken (2)

Additional Action Taken (3)

G1 Resources *

[X] Check this box and skip this section if an Apparatus or Personnel form is used.

	Apparatus	Personnel
Suppression	0009	0026
EMS		
Other		

[ ] Check box if resource counts include aid received resources.

G2 Estimated Dollar Losses & Values

LOSSES: Required for all fires if known. Optional for non fires.

		None
Property $, 325 , 000		[ ]
Contents $, 000 , 000		[ ]

PRE-INCIDENT VALUE: Optional

Property $, 325 , 000	[ ]
Contents $, 000 , 000	[ ]

Completed Modules

[X] Fire-2
[X] Structure-3
[ ] Civil Fire Cas.-4
[X] Fire Serv. Cas.-5
[ ] EMS-6
[ ] HazMat-7
[ ] Wildland Fire-8
[X] Apparatus-9
[X] Personnel-10
[ ] Arson-11

H1 * Casualties [ ] None

	Deaths	Injuries
Fire Service		002
Civilian		

H2 Detector

Required for Confined Fires.

1 [ ] Detector alerted occupants
2 [X] Detector did not alert them
U [ ] Unknown

H3 Hazardous Materials Release

N [ ] None
1 [ ] Natural Gas: slow leak, no evauation or HazMat actions
2 [ ] Propane gas: <21 lb. tank (as in home BBQ grill)
3 [ ] Gasoline: vehicle fuel tank or portable container
4 [ ] Kerosene: fuel burning equipment or portable storage
5 [ ] Diesel fuel/fuel oil: vehicle fuel tank or portable
6 [ ] Household solvents: home/office spill, cleanup only
7 [ ] Motor oil: from engine or portable container
8 [ ] Paint: from paint cans totaling < 55 gallons
0 [ ] Other: Special HazMat actions required or spill > 55gal., Please complete the HazMat form

I Mixed Use Property

NN [ ] Not Mixed
10 [ ] Assembly use
20 [ ] Education use
33 [ ] Medical use
40 [X] Residential use
51 [ ] Row of stores
53 [ ] Enclosed mall
58 [ ] Bus. & Residential
59 [ ] Office use
60 [ ] Industrial use
63 [ ] Military use
65 [ ] Farm use
00 [ ] Other mixed use

J Property Use * Structures

131 [ ] Church, place of worship
161 [ ] Restaurant or cafeteria
162 [ ] Bar/Tavern or nightclub
213 [ ] Elementary school or kindergarten
215 [ ] High school or junior high
241 [ ] College, adult education
311 [ ] Care facility for the aged
331 [ ] Hospital
341 [ ] Clinic, clinic type infirmary
342 [ ] Doctor/dentist office
361 [ ] Prison or jail, not juvenile
419 [X] 1-or 2-family dwelling
429 [ ] Multi-family dwelling
439 [ ] Rooming/boarding house
449 [ ] Commercial hotel or motel
459 [ ] Residential, board and care
464 [ ] Dormitory/barracks
519 [ ] Food and beverage sales
539 [ ] Household goods, sales, repairs
579 [ ] Motor vehicle/boat sales/repair
571 [ ] Gas or service station
599 [ ] Business office
615 [ ] Electric generating plant
629 [ ] Laboratory/science lab
700 [ ] Manufacturing plant
819 [ ] Livestock/poultry storage (barn)
882 [ ] Non-residential parking garage
891 [ ] Warehouse

Outside

124 [ ] Playground or park
655 [ ] Crops or orchard
669 [ ] Forest (timberland)
807 [ ] Outdoor storage area
919 [ ] Dump or sanitary landfill
931 [ ] Open land or field
936 [ ] Vacant lot
938 [ ] Graded/care for plot of land
946 [ ] Lake, river, stream
951 [ ] Railroad right of way
960 [ ] Other street
961 [ ] Highway/divided highway
962 [ ] Residential street/driveway
981 [ ] Construction site
984 [ ] Industrial plant yard

Lookup and enter a Property Use code only if you have NOT checked a Property Use box:

Property Use: 419 — 1 or 2 family dwelling

NFIRS-1 Revision 03/11/99

If Fire was In enclosed building or a portable/mobile structure complete the rest of this form

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

1 [X] 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
O [ ] Other
U [ ] Undetermined

Height

Count the ROOF as part of the highest story

002 Total number of stories at or above grade

Total number of stories below grade

Structure Fire

Total square feet: , 001 , 092

OR

Lenght in feet: , 026 BY Width in feet: , 042

J1 Fire Origin *

001 Story of fire origin

[ ] Below Grade

J2 Fire Spread *

1 [ ] Confined to object of origin
2 [ ] Confined to room of origin
3 [ ] Confined to floor of origin
4 [X] Confined to building of origin
5 [ ] Beyond building of 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)

002 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 same 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 of flame spread

Required only if item contributing code is 00 or<70

L1 Presence of Detectors *

(In area of the fire)

N [ ] None Present — Skip to section M

1 [X] Present

U [ ] Undetermined

L2 Detector Type

1 [X] Smoke
2 [ ] Heat
3 [ ] Combination smoke - heat
4 [ ] Sprinkler, water flow detection
5 [ ] More than 1 type present
O [ ] Other _____
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 [ ] Multple detectors & power supplies
0 [ ] Other _____
U [X] Undetermined

L4 Detector Operation

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

L5 Detector Effectiveness

Required if detector operated

1 [ ] Alerted Occupants, occupants responded
2 [ ] Occupants failed to respond
3 [X] There were no occupants
4 [ ] Failed to alert occupants
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 [X] None Present

1 [ ] Present — Complete rest of Section M

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 (CO_2) system
0 [ ] Other special hazard system
U [ ] Undetermined

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

M4 Number of Sprinkler Heads Operating

Required if system operated

Number of sprinkler heads operating

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

NFIRS-3 Revision 01/19/99

21307	MA	04	13	2004	1	04-0000724	000	X Change / ☐ No Activity	NFIRS-2 Fire
FDID *	State *	Incident Date *			Station	Incident Number *	Exposure *		

B Property Details

B1 0001 ☐ 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)
1 ☐ Bulk storage or warehousing
2 ☐ Processing or manufacturing
3 ☐ Packaged goods for sale
4 ☐ Repair or service

On-site material (2)
1 ☐ Bulk storage or warehousing
2 ☐ Processing or manufacturing
3 ☐ Packaged goods for sale
4 ☐ Repair or service

On-site material (3)
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 UU Undetermined
Heat source *

D3 UU Undetermined
Item first ignited * 1 ☐ Check Box if fire spread was confined to object of origin

D4
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 ☐ None

Factor Contributing To Ignition (1)
Factor Contributing To Ignition (2)

E3 Human Factors Contributing To Ignition

Check all applicable boxes ☐ None

1 ☐ Asleep
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 envolved
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

H2 Mobile Property Type & Make

Mobile property type
Mobile property make
Moblie property model
Year
License Plate Number
State
VIN Number

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

K1 Person/Entity Involved
Local Option

Business name (if applicable) | Area Code | Phone Number

☐ Check This Box if same address as incident location. Then skip the three duplicate address lines.

Mr.,Ms., Mrs. | First Name | MI | Last Name | Suffix

Number | Prefix | Street or Highway | Street Type | Suffix

Post Office Box | Apt./Suite/Room | City

State | Zip Code

☐ **More people involved? Check this box and attach Supplemental Forms (NFIRS-1S) as necessary**

K2 Owner ☐ Same as person involved? Then check this box and skip The rest of this section.
Local Option

Business name (if Applicable): 9 Rockwood Street
Area Code: 508 - Phone Number: 668 - 3312

☐ Check this box if same address as incident location. Then skip the three duplicate address lines.

Mr.,Ms., Mrs. | First Name: Keith | MI | Last Name: Preston | Suffix

Number: 9 | Prefix | Street or Highway: Rockwood | Street Type: ST | Suffix

Post Office Box | Apt./Suite/Room | City: Walpole

State: MA | Zip Code: 02081

L Remarks
Local Option

Single family home involved in fire on arrival. Four 1 3/4" handlines in operation. Interior gas explosion forces 4 firefighters to be blown out of the building. Two firefighters were taken to the hospital with non life threatening injuries. Both men were treated and released. Fire is under investigation by the State Fire Marshalls Office and the Walpole Fire investigators. Fire detail in place until the morning when the investigation will continue.

Evidence from the scene taken into fire department custody.

Items taken were gas meter assembly, regulator and associated piping. Taken by Timothy F. Bailey, Jr., 04.13.04 2200 hours.

L Authorization

Officer in charge ID	Signature	Position or rank	Assignment	Month	Day	Year
0078	Hartmann, Jr., Edward	FC		04	14	2004

Check Box if same as Officer in charge.	Member making report ID	Signature	Position or rank	Assignment	Month	Day	Year
☐	1719	Smith, Stephen H	CP		04	14	2004

FDID *	State *	Incident Date *			Station	Incident Number *	Exposure *	
21307	MA	4	13	2004	1	04-0000724	000	Complete Narrative

Narrative:

Single family home involved in fire on arrival. Four 1 3/4" handlines in operation. Interior gas explosion forces 4 firefighters to be blown out of the building. Two firefighters were taken to the hospital with non life threatening injuries. Both men were treated and released. Fire is under investigation by the State Fire Marshalls Office and the Walpole Fire investigators. Fire detail in place until the morning when the investigation will continue.

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Exhibit 3

Schematic of Utility Room

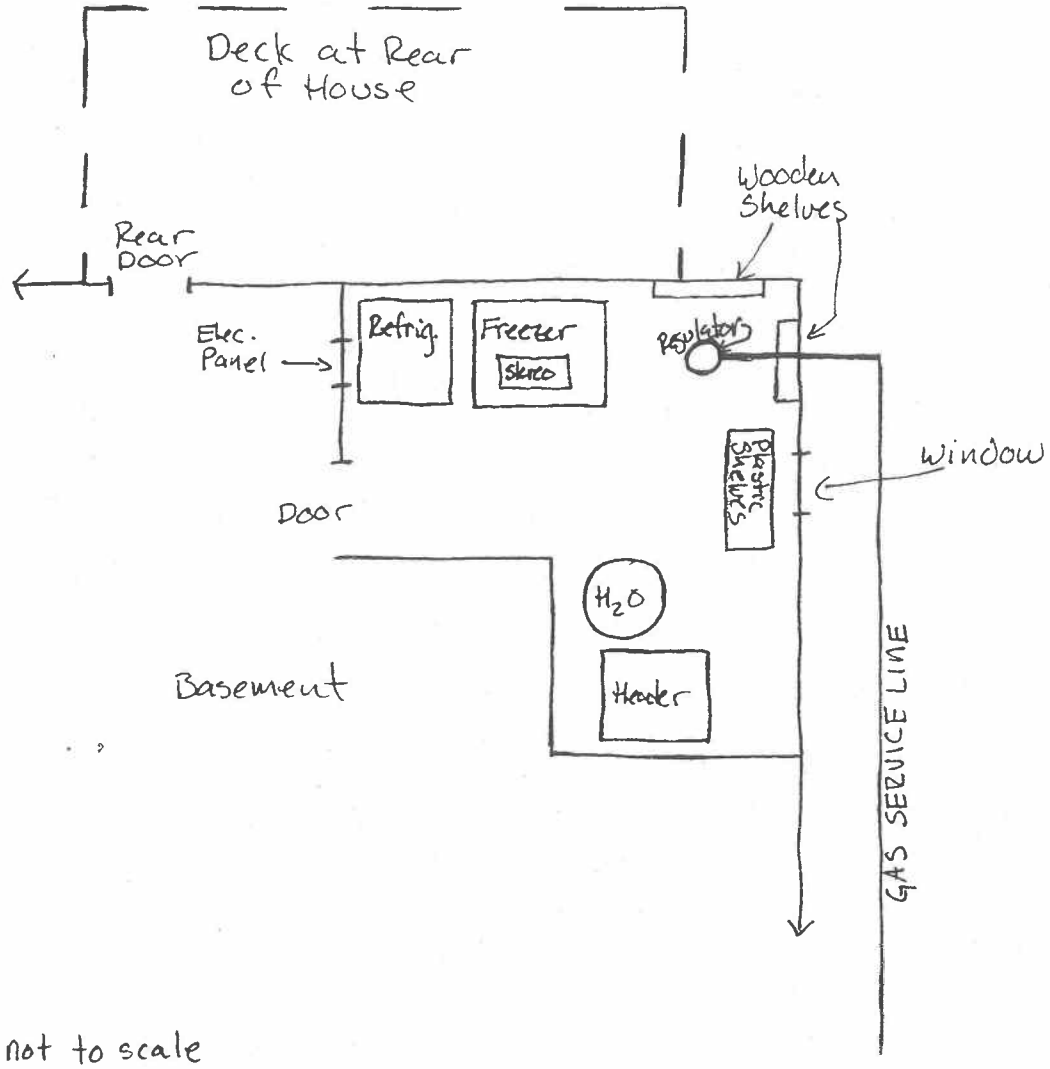


Figure 1: Schematic of utility room in basement.

Exhibit 4

Utility Room

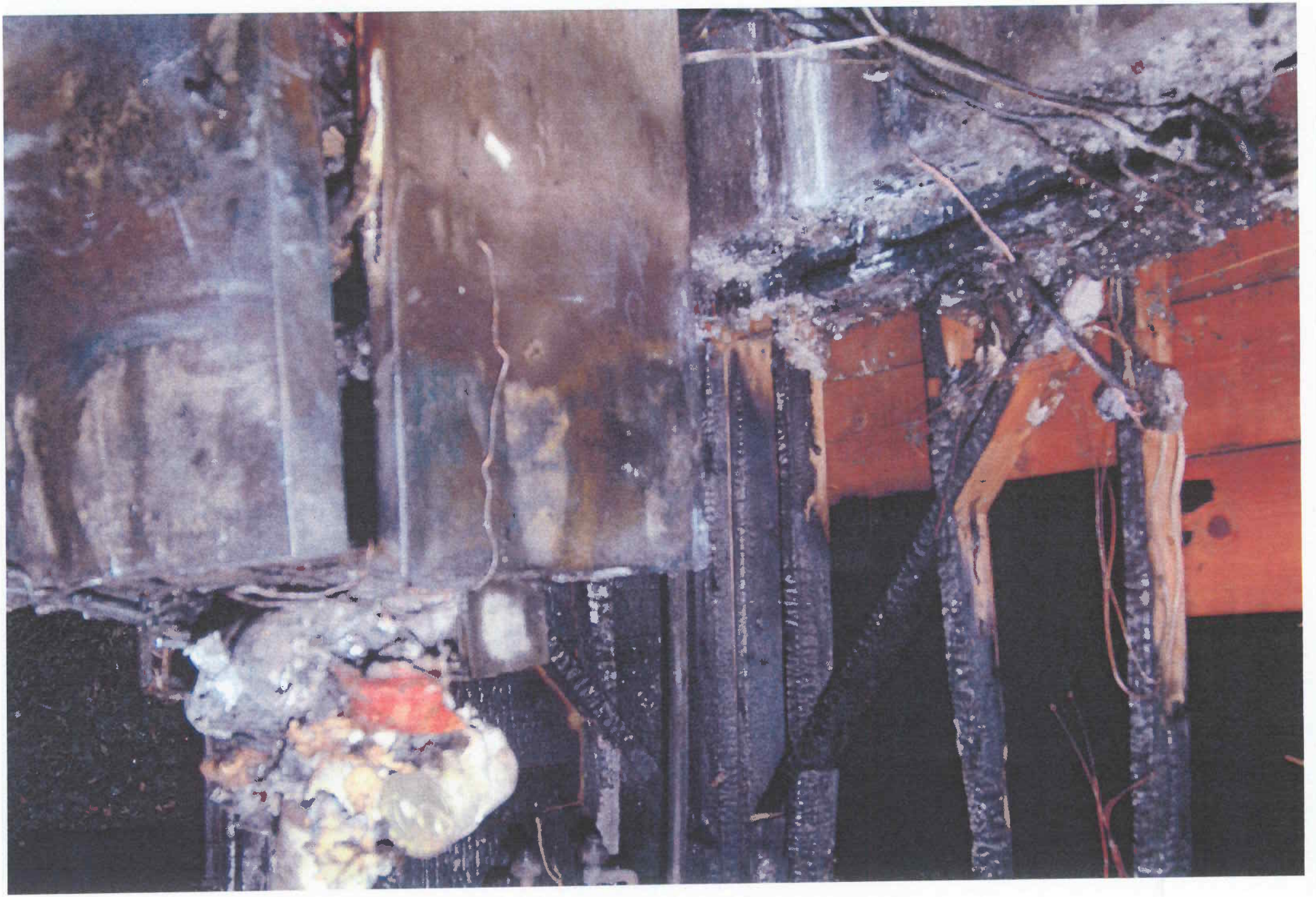


Exhibit 5

The Gas Meter

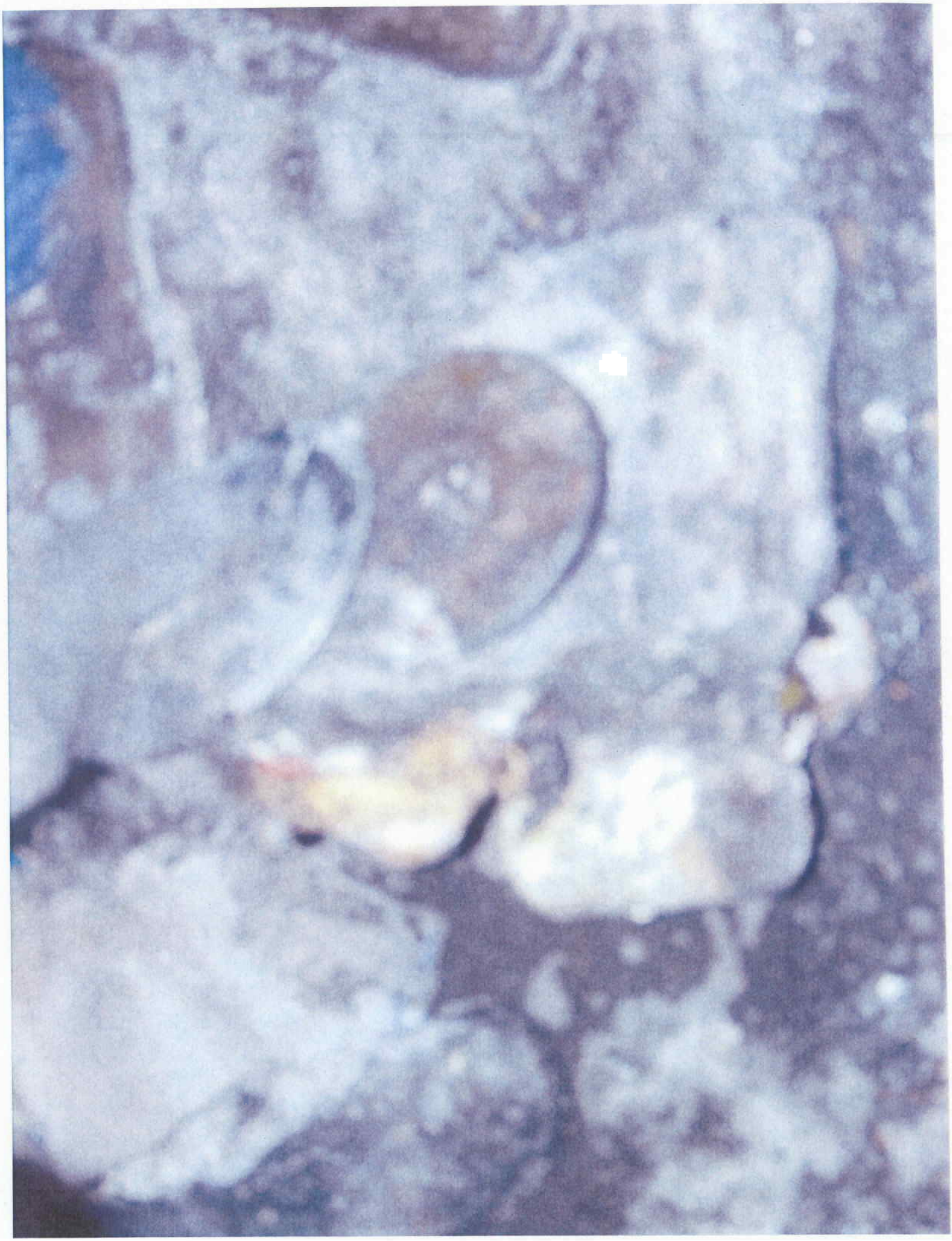


Exhibit 6

The Gas Regulator

Exhibit 7

Damage to the Front of the House

Exhibit 8

The Rear of the House near the Utility Room

Exhibit 9

Leak Surveys Conducted on April 13, 2004

STANDBY CALL OUT - S. WILBUR - EXPLOSION

Date 4/13/04

Attachment DTE 1-6

SURVEYS & ANALYSIS, INC.

538 Hartford Turnpike
Shrewsbury, MA 01545
(508) 842-4011

Status NEGATIVE ALL SERVICES & MAIN
No. Est. Leak Locations

BAY STATE GAS CO BROCKTON
COMPANY DISTRICT

9 ROCKWOOD ST at NEAL ST
REPORT AREA STREET & NUMBER BLOCK BETWEEN AND

WALPOLE MA.
CITY OR TOWN STATE

TYPE OF SURVEY	SUB SURFACE	MOBILE	WALKING	RECHECKS	STANDBY	C. IRON
WINTER					EXPLOSION	
SUMMER						
FALL						

SURVEY REPORT

TIME LEAK FOUND NO LEAKS DETECTED

Combustible Indicator Test: ☐ Positive ☒ Negative L.E.L. _____ % Gas _____

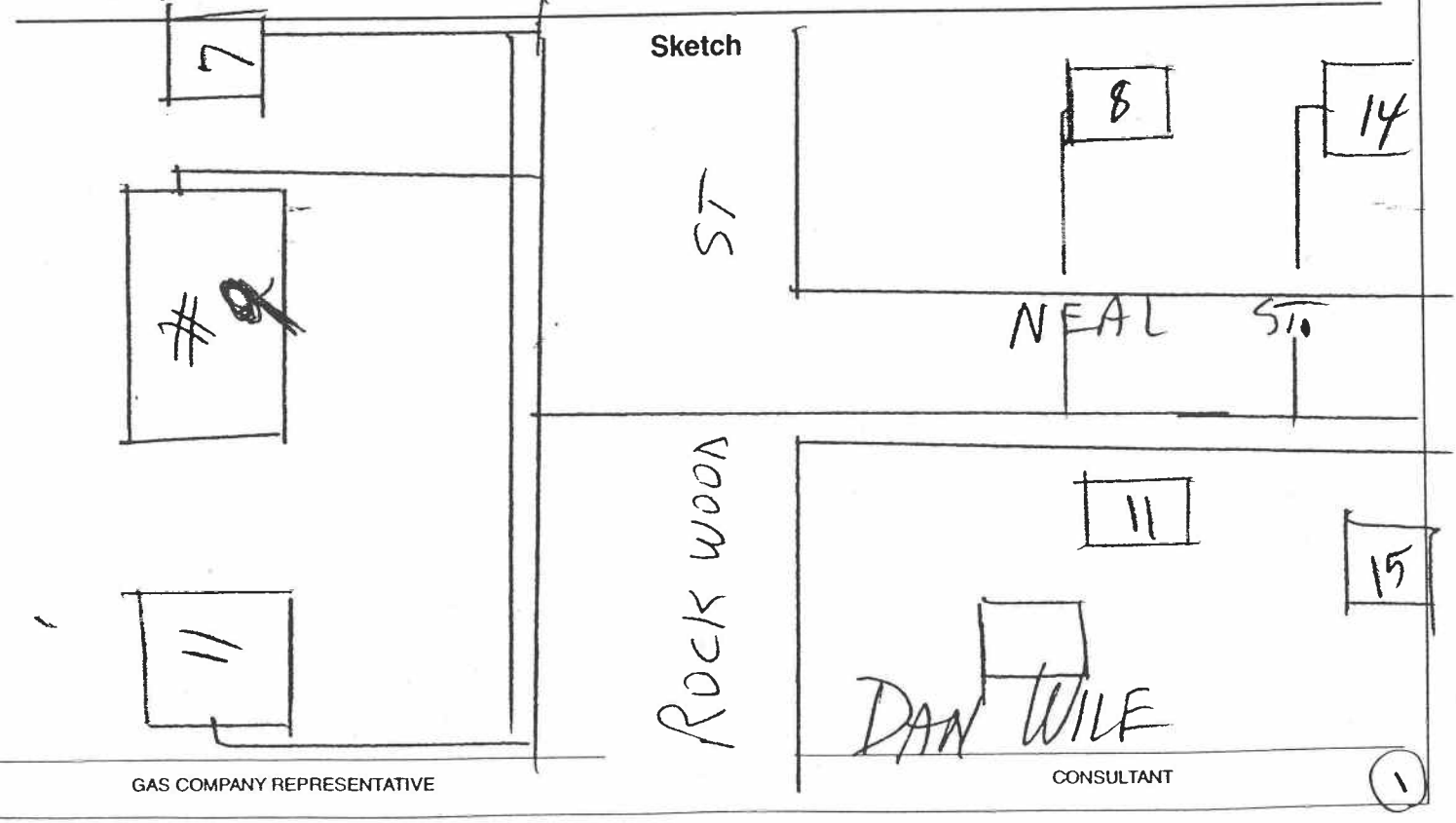
Leakage appears to be at/on: ☒ Main NEG ☒ Service NEG ☐ Joint NEG ☐ Other NEGATIVE ALL SERVICES & MAINS

Surface Covering: ☐ new ☒ old

☐ asphalt ☐ brick ☐ cobblestone ☐ concrete ☐ dirt ☐ macadam

Ownership: ☒ Public ☐ Private ☐ On line ☐ Easement

Sketch



GAS COMPANY REPRESENTATIVE

CONSULTANT

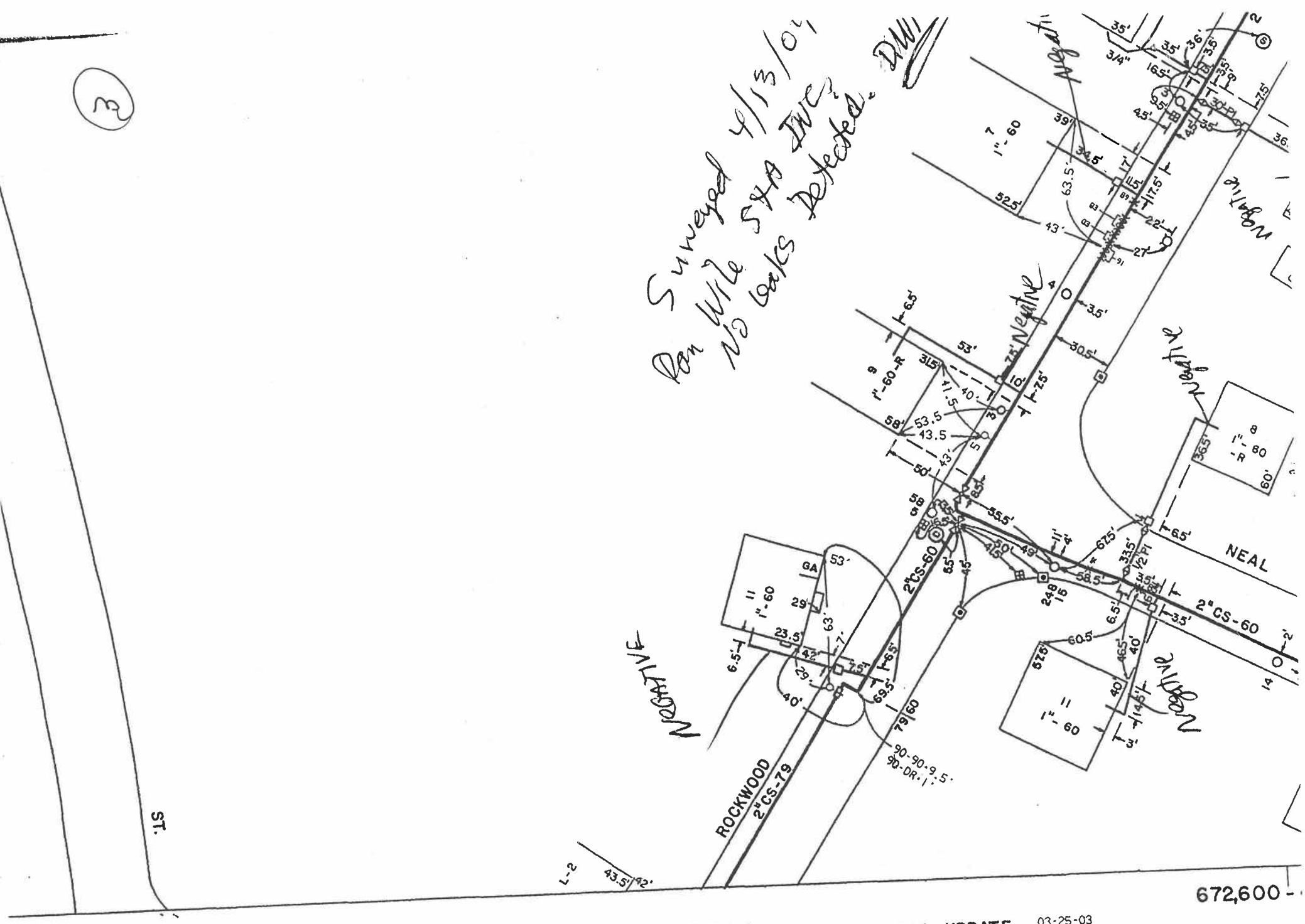
1

4/13/04

Daniel D. Wile
Surveys and ANALYSIS, INC
538 Hartford Turnpike
SHREWSBURY, MA. 01545

AT 7:08, 4/13/04, I SURVEYED ALL BLDNGS AND HOMES ON ROCKWOOD ST AND NEAL ST. ALL TESTS WERE NEGATIVE IN ENTIRE AREA. I CONCLUSION, ALL SERVICES and ALL MAINS WERE NEGATIVE.

Daniel D. Wile



880N

BAY STATE GAS CO. – BROCKTON DIV.

GAS UPDATE 03-25-03

Exhibit 10

Work Order Showing Pressure Test

Project I.D.

Manual Distribution Work Order

Identification:

Field	Entry
House #	9
Street Name	[illegible]
Work Order #	[illegible]
Other Identifying Information	Fire/explosion
Town	Walpole
Date	[illegible]
Customer Name	
Filled Out By	[illegible]
Phone	

Work:

Field	Entry
Work Description	[illegible]
Leak Priority	[illegible]
Scheduled Date	[illegible]
Cause of Leak	
Employee Assigned	[illegible]
Dispatcher Comments	
BSG Crew Assigned	[illegible]
Contr. Crew Assigned	[illegible]

MB

Pipe Data:

	New Pipe	Exposed Pipe	Retired Pipe
Pipe Size		[illegible]	[illegible]
Pipe Type		[illegible]	[illegible]
Coat Type		[illegible]	
Pressure		[illegible]	[illegible]
Length			[illegible]
Cut	S M L		
Depth		[illegible]	[illegible]
Year		[illegible]	[illegible]
Pipe Cond.		LN F P VP	LN F P VP
Coat Cond.		G MD ED	
Pit Depth			
# of Fits			
Fit Size			
Rate Class			

Other Data:

Item	Entry
Anode Inst.	
Flow Limiter Installed	
Flow Limiter Tagged	
Curb Cock Installed	
Meter Barrier Installed	
Meter Fit Installed	
Inside	
Outside	
Soap Test	
Pressure Test	
Pounds/ Square Inch	[illegible]
Elpsd. PSI Time	[illegible]
Patch Size Length	
Width	

Restoration Needed ☒ Restoration Done ☐ Bill to Customer? ☐ Yes ☐ No

Enter Other Completion Information And Restoration Information on Back

(1)

Distribution Department
Daily Crew Sheet

Date	Vehicle #
4-13-04	STBY

	Name
Leader Emp # 353	R. KELLEY
Emp # 786	M. BRADY
Emp # 1080	K. WAYSLOW
Emp #	
Emp #	

Work Order Number	Street #	Address Street Name	Town Code	Job Time	Pay Rate
5530006	9	Rockwood ST	WA	8	1.5
			Total	8	

Comments:

CUT OFF SERVICE AT MAIN & THERM & CAPPED. PRESSURE TESTED 1" C.I. SERVICE AT 5016 PARK. LL MIKES. 10:17 PM - 10:33 PM. BAL TESTED MAIN & SERVICES III AREA. B. STOYA, J. MURPHY, S. WILBER, B. VALON, M. PETERSON, K. PARKS, R. KELLEY, K. WAYSLOW & M. BRADY WERE THERE. 3TH CREW ARRIVED AT 6:30 PM & CLEARED AT 11:30 PM.

SUPERVISOR APPROVAL

4/13/04

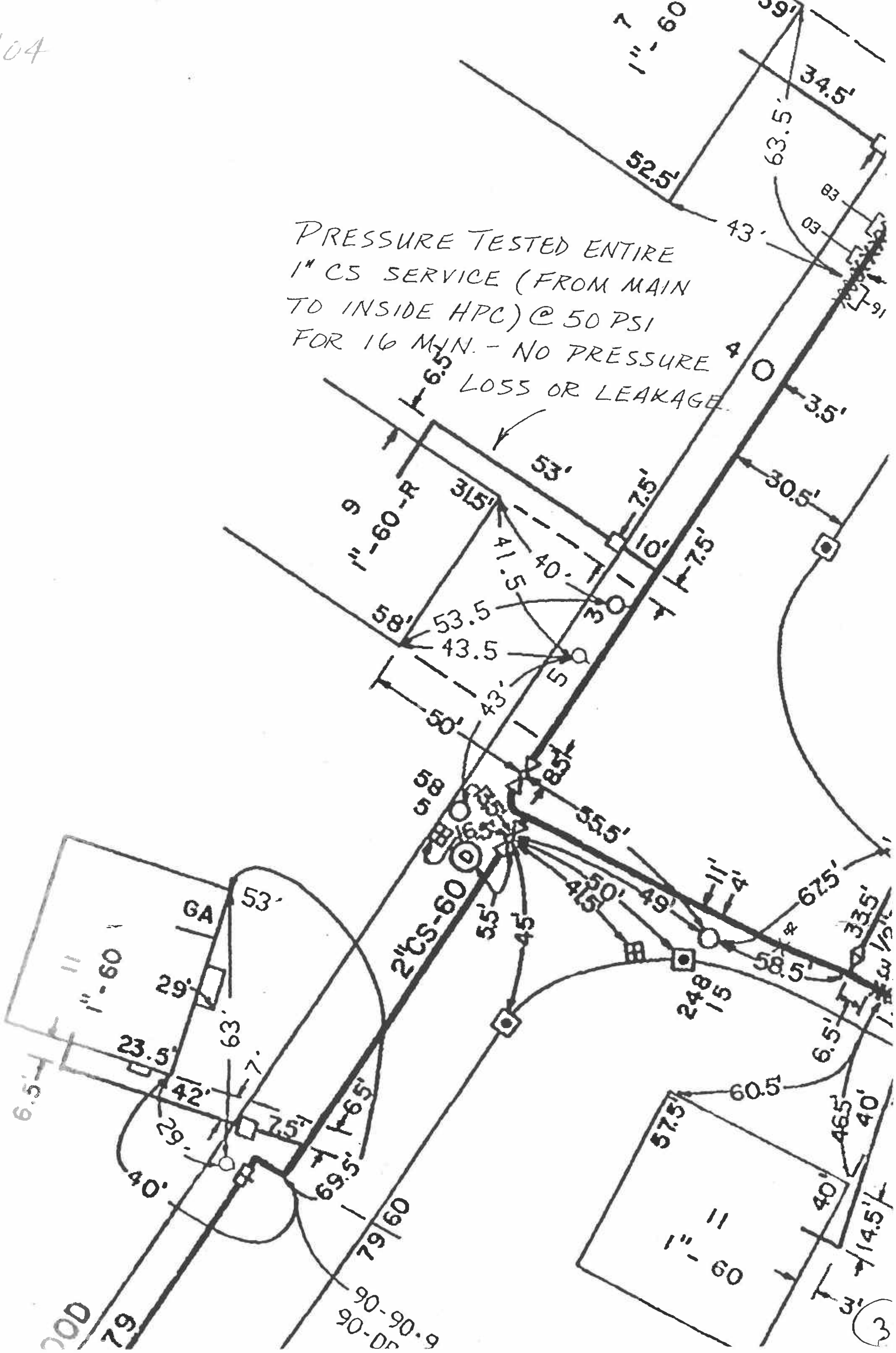

PRESSURE TESTED ENTIRE
1" CS SERVICE (FROM MAIN
TO INSIDE HPC) @ 50 PSI
FOR 16 MIN. - NO PRESSURE
LOSS OR LEAKAGE
7
1"-60
9
1"-60-R
11
1"-60
11
1"-60
2"CS-60
GA
79
60
79
90-90-9
3

Exhibit 11

Pressure Gauge of Pressure Test

Exhibit 12

Work Order for Meter Change and Leak Survey

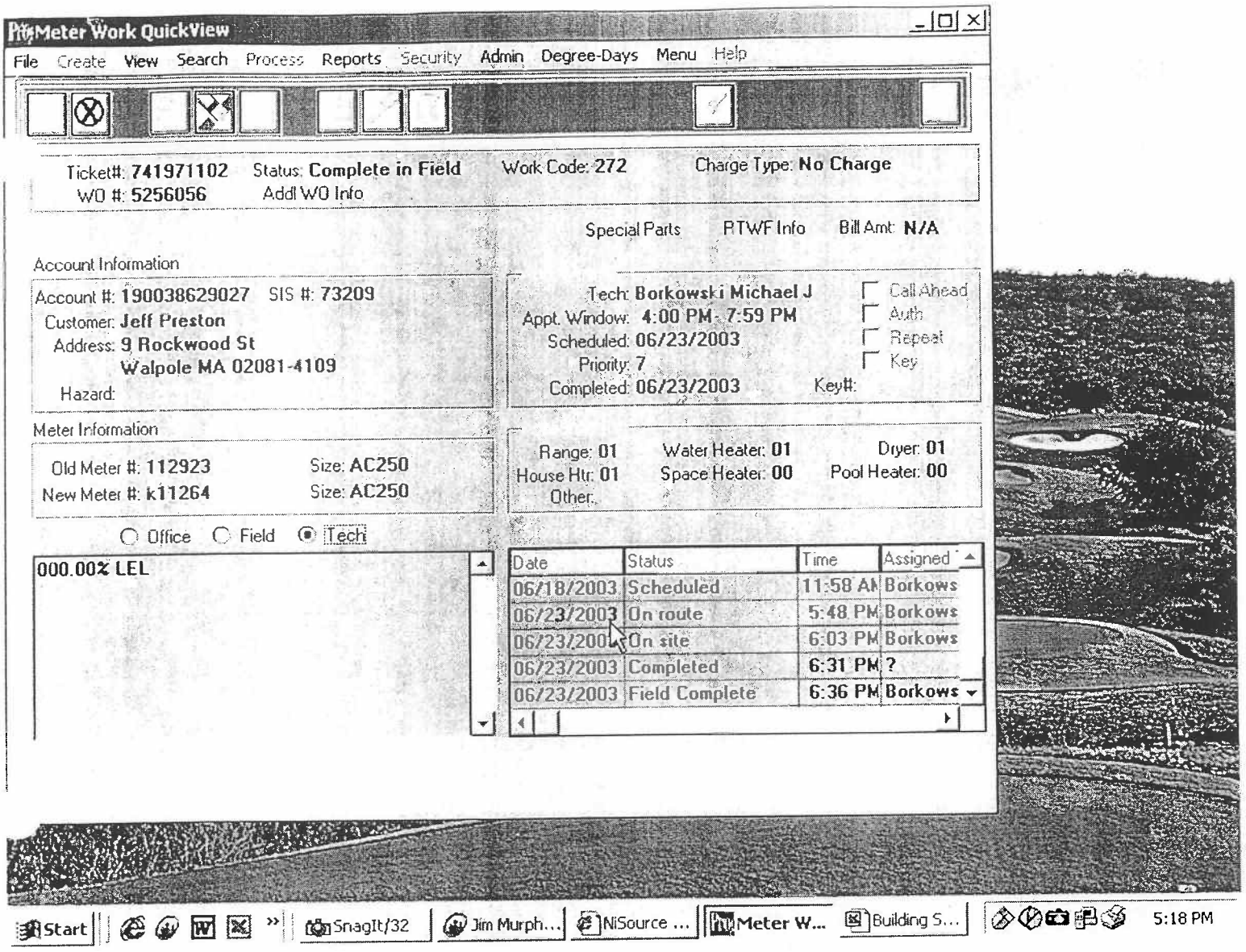
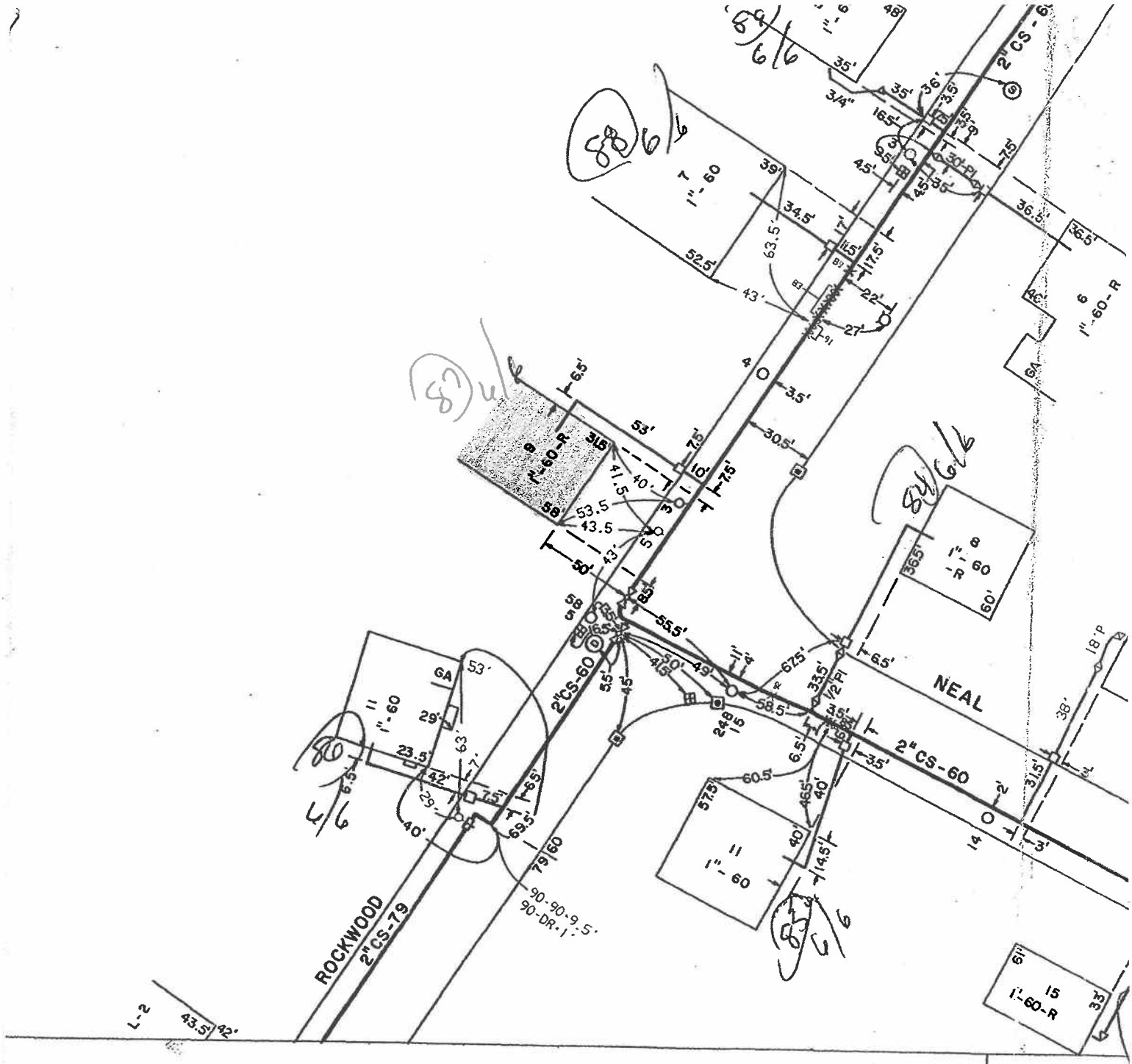

Meter Work QuickView
File Create View Search Process Reports Security Admin Degree-Days Menu Help
Ticket#: 741971102 Status: Complete in Field Work Code: 272 Charge Type: No Charge
WO #: 5256056 Addl WO Info
Special Parts RTWF Info Bill Amt: N/A
Account Information
Account #: 190038629027 SIS #: 73209
Customer: Jeff Preston
Address: 9 Rockwood St
Walpole MA 02081-4109
Hazard:
Tech: Borkowski Michael J
Appt. Window: 4:00 PM - 7:59 PM
Scheduled: 06/23/2003
Priority: 7
Completed: 06/23/2003
Call Ahead
Auth
Repeat
Key
Key#:
Meter Information
Old Meter #: 112923 Size: AC250
New Meter #: k11264 Size: AC250
Range: 01 Water Heater: 01 Dryer: 01
House Htr: 01 Space Heater: 00 Pool Heater: 00
Other:
Office Field Tech
000.00% LEL
Date Status Time Assigned
06/18/2003 Scheduled 11:58 AM Borkows
06/23/2003 On route 5:48 PM Borkows
06/23/2003 On site 6:03 PM Borkows
06/23/2003 Completed 6:31 PM ?
06/23/2003 Field Complete 6:36 PM Borkows
Start
SnagIt/32
Jim Murph...
NiSource ...
Meter W...
Building S...
5:18 PM

Exhibit 13

Service Line Leak Survey on June 6, 2003



BROCKTON DIV.

GAS UPDATE 11-13-01

672,600 - 414,000

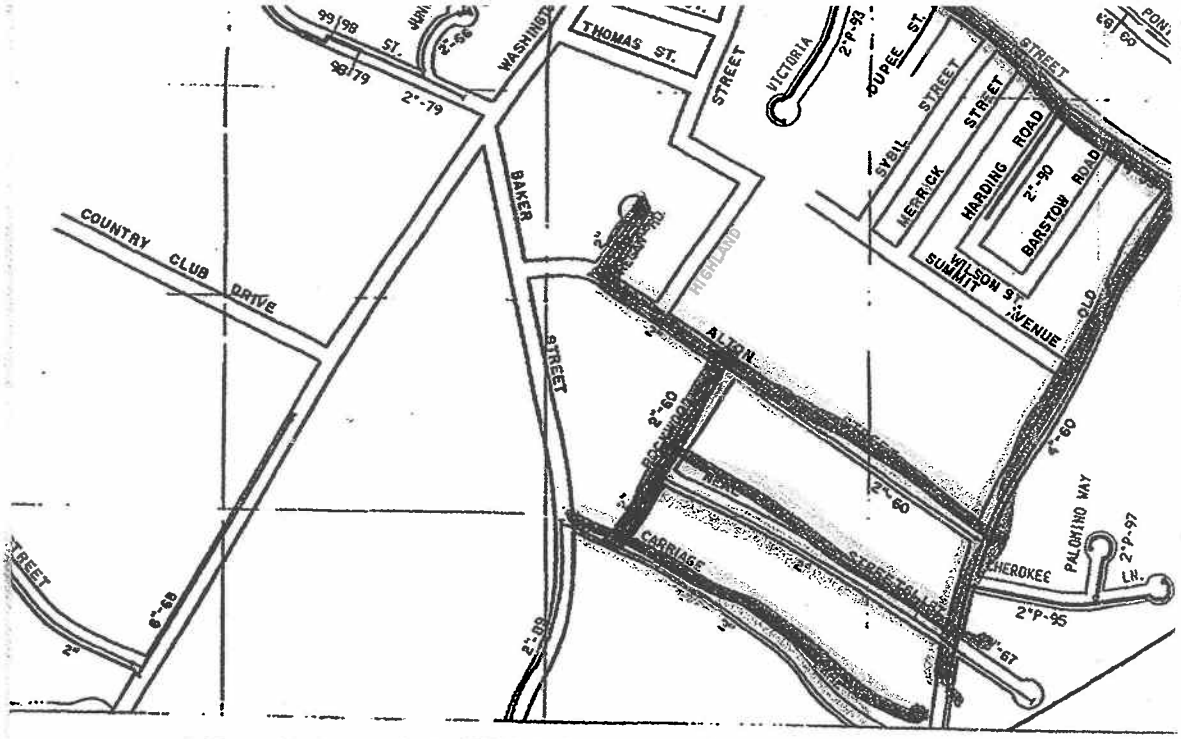
Exhibit 14

Main Leak Survey – July 23, 2003
Winter Leak Survey - January 25, 2004

JNTON GAS CO. 25.72 miles 10-24-80

SCALE 1 INCH = 400 FEET
STREET WIDTH NOT TO SCALE

Main Survey
July 23, 2003



BROCKTON TAUNTON GAS CO. 25.72 mile: 10-2

Winter Survey
January 25, 2004

Exhibit 15

Work Order of Leak Repair on February 11, 2003

Attachment DTE 1-10

PRO SCAN

MAR 2 8 2003

Distribution Work Order

COMPLETED

Identification:

At House	To House	Street Name	Location Phone	Work Order #
7	0	ROCKWOOD ST		5103221-1

Bldg. #	Unit #	Apt. #	Suite #	Town	Work Phone	Initiated Date
				WALPOLE		01/27/2003

At Lot	To Lot	At Pole	To Pole	At Intersection	Customer Account #	Initiated Time
						12:28

Kit and Grid #	To Intersection	CCS Number	Source
67241AX		0-0-0	LEAK SURVEY

Customer Name	Entered By	Digging Conditions	Source Name
			NEIL DULMAINE-S&

Work:

Work Code	Work Description	Estimated Units	Scheduled Date
LRMX	MAIN - LEAK REPAIR	1	01/27/2003

Leak Priority	Employee Assigned
CLASS 2	GILES, DAVID
	G. BROWNE

Outgoing Comments: CLASS 2* LEAK - 65% - 2003 WP/HP.

Cause of Leak	BSG Crew Assigned
DW	
	399

Dig Safe #	Contr. Crew Assigned

Job Priority:

Pipe Data:

	New Pipe		Exposed Pipe		Retired Pipe
Pipe Size				2"	
Pipe Type				C.S.	
Coat Type				C-TAR	
Pressure				INT	
Length					
Cut		S M L			S M L
Depth				2'8"	
Year				1960	
Pipe Cond.		LN - F - P - VP		LN - (F) - P - VP	LN - F - P - VP
Coat Cond.		G - MD - ED		G - (MD) - ED	G - MD - ED
Pit Depth					
# of Fits					
Fit Size					
Rate Class					

Other Data:

Anode Inst.	☒
Flow Limiter Installed	☐
Flow Limiter Tagged	☐
Curb Cock Installed	☐
Meter Barrel Installed	☐
Meter Fit Installed	☐
Inside	☐
Outside	☐
Soap Test	☒
Pressure Test	☐
Pounds/ Square Inch	
Elpsd. PSI Time	
Patch Size Length	12
Width	3

COMPLETED ECL

Restoration Needed ☒ Restoration Done ☐ Bill to Customer? ☐

Enter Other Completion Information And Restoration Information on Back

LS 001 6 97

Sketch:

MEASURES TO CLAMPS ALREADY ON MAP

Line of Main _____

Restoration Data:

	Required	Done	Date Done
Sand			
Gravel			
Base Coat			
Cold Patch			
Hot Patch			
Flow Fill			
Infra-Red			
Concrete			
Loam & Seed			
Other			
Size			
Signature			

Permit Data:

Dig Safe: Ticket # 030501008 Date Effective 1/30/03

Notification: _____ _____

Permit Required:

		Date Sent	Date Rec'd	Permit #
Town	☑	3/21/03		
State	☐			

Water Notification: ☑ Date Called 1/27/0

Sewer Notification: ☑ Date Called _____

Stamps:

Completion Data:

Comments: REPLACED 2 LEAKING CLAMPS

Completed Date: 2-11-03

Date Started: 2-11-03

Completed Units: 1

Signature: G. BROWNE

(2)

Exhibit 16

Record of Pressure at the Time of the Incident

SCADA Report June 3, 2004

RTU State:MASSACH RTU Name: MEDG RTU Owner: BSG_

RTU Description: MDG-Medway Gate

From Calendar Date: 2004-04-01 To Calendar Date: 2004-04-15

Calendar Date	Calendar Hour	Current Reading	Average Reading	Maximum Reading	Minimum Reading
2004-04-12	6	55.333	58.12	63.6	55.333
2004-04-12	7	48.8	51.527	55.2	48.8
2004-04-12	8	50.0	47.995	50.0	46.889
2004-04-12	9	53.511	52.196	53.511	50.4
2004-04-12	10	56.356	54.795	56.356	53.422
2004-04-12	11	57.156	56.541	57.156	56.089
2004-04-12	12	56.889	56.889	56.889	56.889
2004-04-12	13	58.756	58.036	58.756	57.733
2004-04-12	14	59.111	59.111	59.111	59.111
2004-04-12	15	57.511	58.698	59.6	57.511
2004-04-12	16	58.222	58.222	58.222	58.222
2004-04-12	17	57.911	57.911	57.911	57.911
2004-04-12	18	57.022	57.022	57.022	57.022
2004-04-12	19	56.756	56.756	56.756	56.756
2004-04-12	20	56.133	56.133	56.133	56.133
2004-04-12	21	55.156	55.427	56.178	55.156
2004-04-12	22	56.489	56.059	56.489	55.467
2004-04-12	23	58.178	57.52	58.178	57.156
2004-04-13	0	60.089	58.632	60.089	58.044
2004-04-13	1	62.0	61.723	62.0	60.933
2004-04-13	2	62.489	62.558	72.311	62.444
2004-04-13	3	62.444	62.444	62.444	62.444
2004-04-13	4	62.0	62.0	62.0	62.0
2004-04-13	5	59.333	60.691	61.467	59.333
2004-04-13	6	53.911	57.199	59.111	53.911
2004-04-13	7	49.511	51.65	53.689	49.511
2004-04-13	8	49.111	48.555	49.111	48.089
2004-04-13	9	52.089	50.248	52.089	48.889
2004-04-13	10	54.089	52.693	54.089	52.444
2004-04-13	11	50.889	53.122	53.956	50.889
2004-04-13	12	50.533	51.385	52.578	50.533
2004-04-13	13	51.244	50.843	51.244	50.178
2004-04-13	14	53.467	52.714	53.467	51.422
2004-04-13	15	52.044	53.331	54.089	52.044
2004-04-13	16	50.667	51.225	51.244	50.667
2004-04-13	17	50.222	50.314	50.533	50.222
2004-04-13	18	49.289	49.776	50.311	49.289
2004-04-13	19	48.933	48.933	48.933	48.933
2004-04-13	20	49.422	49.281	49.422	49.067
2004-04-13	21	51.333	50.855	51.333	50.267
2004-04-13	22	53.956	53.117	53.956	52.222
2004-04-13	23	53.956	53.956	53.956	53.956
2004-04-14	0	53.956	53.956	53.956	53.956
2004-04-14	1	53.956	53.956	53.956	53.956
2004-04-14	2	53.956	53.956	53.956	53.956
2004-04-14	3	53.956	53.956	53.956	53.956
2004-04-14	4	53.956	53.956	53.956	53.956
2004-04-14	5	53.956	53.956	53.956	53.956
2004-04-14	6	53.956	53.956	53.956	53.956
2004-04-14	7	53.956	53.956	53.956	53.956
2004-04-14	8	53.956	53.956	53.956	53.956
2004-04-14	9	53.956	53.956	53.956	53.956
2004-04-14	10	57.156	59.025	68.4	53.956
2004-04-14	11	56.133	56.575	57.156	56.133

15

Exhibit 17

Record of Odor Test

BAY STATE GAS - BROCKTON DIVISION

ODORIZATION RECORD

MONTH OF April 2004

DATE	% GAS IN AIR	ODORANT LBS/ MMCF	ODORANT LOCATION OF INJECTION POINT	LOCATION OF TEST	TYPE OF GAS	TESTER	OVER ODORIZATION CALLS	REMARKS
4-14-04	.09	.50	W.MEDWAY	WALPOLE	NATURAL	HANNON	NONE	16 ROCKWOOD ST.
4-15-04	.09	.55	BROCKTON	HOLBROOK	"	HANNON	"	
4-15-04	.09	.36	TAUNTON	EASTON	"	HANNON	"	
4-15-04	.04	.55	BROCKTON	DUXBURY	"	BATCHELOR	"	
4-16-04	.05	.55	BROCKTON	HALIFAX	"	BATCHELOR	"	
4-23-04	.05	.55	BROCKTON	SCITUATE	"	BATCHELOR	"	
4-28-04	.09	.55	BROCKTON	E.BRIDGEWATER	"	HANNON	"	
4-28-04	.09	.55	BROCKTON	BRIDGEWATER	"	HANNON	"	
4-28-04	.09	1.14	SHARON	SHARON	"	HANNON	"	
4-28-04	.09	.47	CANTON	RANDOLPH	"	HANNON	"	
4-28-04	.10	.50	W.MEDWAY	FRANKLIN	"	BORKOWSKI	"	
4-28-04	.10	.50	W.MEDWAY	BELLINGHAM	"	BORKOWSKI	"	
4-28-04	.10	.50	W.MEDWAY	WRENTHAM	"	BORKOWSKI	"	
4-28-04	.10	.50	W.MEDWAY	NORFOLK	"	BORKOWSKI	"	
4-28-04	.10	.50	W.MEDWAY	WALPOLE	"	BORKOWSKI	"	
4-28-04	.09	.36	TAUNTON	MANSFFIELD	"	BORKOWSKI	"	
4-28-04	.09	.50	W.MEDWAY	FOXBORO	"	BORKOWSKI	"	
4-30-04	.04	.55	BROCKTON	HANOVER	"	BATCHELOR	"	
4-30-04	.05	.55	BROCKTON	NORWELL	"	BATCHELOR	"	

Exhibit 18

Fire Investigation Summary Report

Fire Investigation Summary Report

Case Number: **2004-117-0499**
Controlling Case Number: **None**
Case Type: **F30 Fire - Accidental**

Report Creator: **Mark P Varkas**
Lead Investigator(s): **Mark P Varkas** Team: **South**

FIU Requested By: **Chief Hartman, Dep. Chief Bailey from Walpole Fire Department**
FIU Requested On:

Date and Time of Incident: **04/13/2004 at approximately 16:53 PM**
Address/ Location of Incident: **9 Rockwood Rd. Walpole, MA**

Property Investigated

Type of Investigation: **Fire**
Type of Property: **Residential**

Protection Systems:
Smoke Detector: **Operational**
Comments: **Two story split level wood framed residence. The exterior of the home consisted of wood shingles with an asphalt shingled roof. It should be noted that the owner had hired a contractor to vinyl side the home. The home owner was in the process of removing wood shingles and attaching a styrofoam insulation in preparation of the vinyl siding. The home owner, Jeffrey Preston, both discovered and reported the fire. The fire originated in a utility type room in the basement at the CD corner of the home. This room housed the gas fed furnace and hot water heater as well as the gas meter and regulator. Three Walpole Fire Fighters sustained injuries as the result of a natural gas explosion. All three were in the basement attempting to extinguish the fire when the explosion occurred.**

Fire Source

Cause of Fire: **Accidental**
Ignition: **See explanation section below.**
Material Ignited: **Available combustibles, wood and plastic shelving. Natural gas was involved in this fire/explosion.**
Explanation:

On Tuesday, April 13, 2004 at approx. 1653 hours the Walpole Fire Department received a report of a fire at 9 Rockwood Rd. The call was made by the home owner, Jeffrey Preston. Mr. Preston was home at the time of this incident. He both discovered and reported the fire. An alarm was struck and the Walpole Fire Department responded. Captain Smith, Walpole Fire, was in command of the first company to arrive at the fire site. Chief Hartman and Deputy Chief Bailey, Walpole Fire, took overall command of suppression operations upon their arrival at the scene.

The site of the alarm is a split level wood framed residence. The exterior of the home consisted of wood shingles with an asphalt shingled roof. There was a one car garage under at side A. There was a enclosed deck at side C. It should be noted that the home owner had contracted a company to have the home vinyl sided. The homeowner was removing wood shingles and attaching a styrofoam insulation to the exterior of the home in preparation for the vinyl siding. The fire originated in a utility type room in the basement at the CD corner. This room housed the gas fed furnace, hot water heater as well as the gas

meter and regulator. There also was a large stand up freezer and a small refrigerator in this room. Seconds after members of the Fire Department entered the basement there was a natural gas explosion which knocked several windows and the garage door out of place. The force of the explosion moved the side C wall of the home off of the foundation. Thee Walpole Fire Fighters who were in the basement at the time suffered non life threatening injuries.

Arriving units observed flames to be exiting a basement window at side C of the home in an overlapping fashion. This window was closest to the rear of the home and led to the aforementioned utility type room. Entry was made into the basement via the rear door. Seconds after applying water to the area of the fire there was an explosion. The fire for the most part was contained to this basement utility type room.

On the same date at approx. 1800 hours I received a call from Tpr. Stewart, the on call Officer, for the State Police Fire and Explosion Investigation Section. Tpr. Stewart advised me of the fire in Walpole and further advised me that the Walpole Fire Department was requesting an investigator respond in order to assist in the origin and cause investigation.

I did respond to the fire site and I met with Deputy Chief Bailey and Fire Fighter Headd. Deputy Chief Bailey and Fire Fighter Headd updated me as to the incident. Fire Fighter Headd as well as being a Fire Investigator for Walpole Fire was also on the first engine company to arrive at the fire site. Also present were representatives of Bay State Gas, as well as Paul Grieco of the Department of Telecommunications and Energy. Thomas Madigan, of EFI, Private Fire Investigation Company was also present. Thomas Madigan, (EFI), was representing Bay State Gas. The Walpole Building Inspector, Gus Brown was also on site. At this time we initiated an investigation into the origin and cause of this incident. As the result of this joint investigation this Officer is of the belief that this incident was accidental in nature and most probably the result of an object falling onto the regulator in the utility type room causing a small gas leak and fire. Due to the fire the gas leak increased resulting in the eventual explosion. The gas related items including the meter and regulator located in the utility room have been secured at the Walpole Fire Department pending further analysis in an effort to determine if a gas leak proceeded the fire. All interested parties will be contacted re this testing.

This Officer, Deputy Chief Bailey and Fire Fighter Headd had conversation with Jeffrey and Lois Preston. They told us that they reside at the home with their seven year old daughter and that Jeffrey was the only one home at the time of the incident. Jeffrey explained to us that they were going to have the home vinyl sided and in preparation of this work he was in the process of removing the wood shingles and attaching sheets of insulation to the home. He stated that he was working at the rear of the home, side C. He stated that he had just nailed up a sheet of insulation when he heard a hissing sound. He stated that he went into the basement and into the utility room and saw a small fire on the floor in the corner of the room behind the regulator. He stated that it was a small fire and that he did not see anything on the floor burning. He said that it looked like the cement was burning. He stated that there was no smoke and he did not smell anything. He stated that he went to get some water as he felt he could put the fire out. He stated that when he got back the fire had increased and he decided to call the Fire Department. Mr. Preston told us that he was working at the exterior wall of the utility room.

This investigation then proceeded into the home and traced fire damage from least damage to heaviest fire damage. This process led us to the aforementioned utility room at the CD corner of the home. Once in the room we again traced fire damage from least damage to heaviest fire damage which led us to the CD corner of this room behind the regulator and to the right of the freezer. All fire damage was directional to this corner of the room. The freezer was heavily damaged from direct flame impingement and heat on the side closest to this corner. There were small wooden shelves attached to the open studs on both walls in this corner. The shelving was heavily charred and had fallen off of the wall leaving only the brackets. There also was a large plastic shelving unit to the right of the regulator and under the window where first in Fire Fighters saw the flames. This plastic shelving unit sustained heavy fire damage. The damage appeared to be heavier on the side closest to the regulator. The gas meter and regulator sustained heavy fire damage. The floor joists above this corner sustained the heaviest charring and this charring lessened the further away from this corner we observed. Again it appeared that all fire damage

was directional to this corner. The hot water heater and furnace sustained damage from fire extension. The open flame from the hot water heater although not at the point of origin quite possibly could have been the ignition source if in fact a gas leak proceeded the fire.

This investigation sifted and cleared the corner of debris. This debris for the most part consisted of food products and paints that were being stored on the plastic and wooden shelving. This included several canned goods. We secured items that we located in the debris that we believed were related to the gas meter and or regulator.

It should be noted that we also secured any electrical wiring that we observed. We did observe a power strip that had melted into the rear of the freezer. This strip sat on the foundation behind the freezer and was plugged into an outlet on the side B wall. We noted that the freezer, the refrigerator and a stereo receiver were plugged into the strip. It should be noted that we observed numerous wires at ceiling level. State Electrical Investigator, Ed Noonan, responded to the scene and made observations of the wiring. He further documented the electrical panel and the service. It should be noted that the main feed into the panel had burnt away. This damage was from fire extension.

Paul Grieco had Bay State Gas run a check of the line from the street to the foundation of the home. This revealed no leaks. We did not feel running a test for leaks inside the basement at this time would help this investigation as the gas related components had suffered significant fire damage from the fire and or explosion. We did note a dent on top of the regulator.

The Walpole Fire Department posted a Fire Fighter at the fire site overnight in the event of any rekindles and or hot spots.

This investigation returned to the scene the next day re the furtherance of this investigation. Fire Fighter Headd and Cherella took us through the scene explaining their observations and actions in suppressing this fire. We cleared the utility room of any further debris. We looked at the motor section of the freezer and felt that any damage to this area of the freezer was from fire extension. We had a subsequent conversation with the Prestons. We brought them into the utility room and they told us that there was an approx. eight inch opening between the corner of the freezer and the plastic shelving. It was from this opening that they could see into the corner where the regulator and meter were. They both stated that there was nothing stored at floor level in this area as they kept this area clear because of the regulator and meter. It should be noted that the regulator sat approx. eighteen inches from both the side C and side D walls. It was further approx. eighteen inches off of the floor.

As mentioned earlier in this report the gas related components located in this corner of the basement have been secured at the Walpole Fire Department. The power strip and wiring was also secured. Paul Grieco is attempting to have the gas related items tested by an independent party in an effort to determine if a fire proceeded the gas leak or a gas leak proceeded the fire. All interested parties will be contacted if this testing is done.

All involved in this investigation agree as to the point of origin of this fire/explosion and further feel that further testing of the gas related components could possibly shed some light as to what came first the fire or the gas leak. This Officer, not speaking for all involved in the investigation is of the belief that it is conceivable that Mr. Preston while hammering nails into the side C wall knocked an item off of the wooden shelving which fell onto and damaged the regulator enough to cause a small gas leak. There were available ignition sources in close proximity to the regulator including the open flame from the hot water heater. Mr. Prestons statements of hearing a hissing noise and then observing a small fire with no odor and in his words no smoke would be consistent with this event occurring.

This Officer is requesting that this case be closed with an accidental fire cause. This Officer will submit a supplement report pending any testing done to the items secured.

Evidence

Gathered By: **Fire Department**

Description / Explanation / Comments:

Gas meter, regulator and piping feeds located in utility room at CD corner of basement.
Power strip and remaining wiring located behind freezer.

Photos

Taken By: **Other (see comments)**

Description / Explanation / Comments:

Sgt. Bennett - State Police Crime Scene Services.
Thomas Madigan - EFI
Walpole Fire
Bay State Gas

K-9

K-9 Not Used

Occupants

See Report, See Report -- 9 Rockwood Rd. Walpole, MA 00000
DOB: Unknown, SSN: Unknown, Phone: Unknown

Injuries

Cherella, Brian, Walpole Fire Fighter -- Walpole Fire Department Walpole, MA 00000
DOB: Unknown, SSN: Unknown, Phone: Unknown, Injury Status: Injured -- Fire Fighter

Donoghue, Brian, Walpole Fire Fighter -- Walpole Fire Department Walpole, MA 00000
DOB: Unknown, SSN: Unknown, Phone: Unknown, Injury Status: Injured -- Fire Fighter

Smith, Steve, Walpole Fire Captain -- Walpole Fire Department Walpole, MA 00000
DOB: Unknown, SSN: Unknown, Phone: Unknown, Injury Status: Injured -- Fire Fighter

Owner

Preston, Jeffrey W. -- 9 Rockwood Rd. Walpole, MA 00000
DOB: 12-30-59,

Preston, Lois Z. -- 9 Rockwood Rd. Walpole, MA 00000
DOB: 02-15-59,

Reported By

Preston, Jeffrey W. -- 9 Rockwood Rd. Walpole, MA 00000
DOB: 12-30-59,

Discovered By

Preston, Jeffrey W. -- 9 Rockwood Rd. Walpole, MA 00000
DOB: 12-30-59,

Witnesses

No Known Witnesses