



LEHIGH COUNTY AUTHORITY

Policy And Procedures Manual

For

Backflow Prevention/Cross-Connection Control

Protection of the Public Water Supply System

By Containment

May 1992

TABLE OF CONTENTS

	<u>PAGE NO.</u>
I. DEFINITIONS	2
II. STATEMENT OF POLICY	4
III. RESPONSIBILITIES	
A. Lehigh County Authority	4
B. Owner	5
C. Certified Tester	5
IV. SPECIFICATIONS AND APPROVAL FOR BACKFLOW PREVENTION ASSEMBLIES	6
V. EXISTING BACKFLOW PREVENTION ASSEMBLIES	6
VI. AUXILIARY WATER SOURCES	7
VII. LOCATION AND INSTALLATION OF ASSEMBLIES	7
A. General Conditions	7
B. Domestic Service Lines	8
C. Private Fire Protection Service Lines	8
VIII. THERMAL EXPANSION	8
IX. TYPES OF BACKFLOW PREVENTION ASSEMBLIES REQUIRED	9
APPENDIX:	
A. Applicable Rules and Regulations	
B. Typical Installation Sketches	
C. Types of Backflow Prevention Devices and Methods	
D. List of Authority-Approved Backflow Prevention Devices	
E. Sample Test Report	
F. References	

FOREWORD

In accordance with the Federal Safe Drinking Water Act of 1974, the Pennsylvania Safe Drinking Water Act Sections 109.608 and 109.709(b), requirements of the Pennsylvania Department of Environmental Resources Public Water Supply Manual and the Lehigh County Authority Rules and Regulations for Water Service, the Authority has adopted a policy for protection of its potable water supply system from backflow, through a program of containment.

The Authority, as the water purveyor, has the primary responsibility for preventing water from unapproved sources, or any other substances, from entering the public water supply system. The policy and procedures contained herein recognize that every customer's plumbing system contains connections to fixtures, tanks, pipes, etc. containing or which could contain, substances which could contaminate and/or pollute the customer's and the Authority's potable water system, if not properly controlled. It is the intent of this policy and these procedures to educate and aid the customer in identifying plumbing cross-connections within their facility, and to protect the Authority's system by containing within a customer's premises any water, liquids, mixtures or substances which may enter the customer's potable water system through cross-connections. This policy along with the procedures described hereafter, the applicable codes, rules and regulations adopted by the political subdivisions in which the Authority provides water service, are designed to provide the Authority's system with reasonable protection from contamination and/or pollution as a result of backflow.

These procedures set guidelines for the minimum backflow prevention devices to be utilized in protecting the Authority's system from hazards associated with backflow and/or back-siphoning from a consumer's premises. However, it is the owner's ultimate responsibility to ensure that the appropriate Authority-approved assembly is installed and maintained in order to prevent any pollutant and/or contaminant from flowing from the owner's facility back into the Authority's system. While the Authority has the right to have access to the customer's premises, that right or the exercise of such right shall not diminish the owner's responsibility to install and maintain an approved backflow prevention assembly.

I. DEFINITIONS

The following definitions shall apply:

Air Gap Separation: The unobstructed vertical distance through the free atmosphere between the lowest opening from any pipe or faucet supplying water to a receptacle and the flood level rim of the receptacle. The distance between the opening and the flood rim shall be at least twice the diameter (2 x Dia.) of the supply pipe, and a minimum of 1 inch.

Approved: Accepted by the Authority as meeting the applicable specifications of this policy and procedures manual.

Authority: Lehigh County Authority.

Auxiliary Water Supply: Any water source or system on the premises, available for use by the customer, except connections between the Authority's system and other approved public water supply systems.

Backflow: The reversal in direction of flow from the normal or intended direction of flow whereby water or other liquids, mixtures, or substances can enter into the Authority's system from any unapproved source.

Backflow Prevention Assembly: An assembly or other means installed on the customer's service line to prevent backflow.

Back Pressure: An increase in pressure created within a customer's plumbing system resulting in a greater pressure within the facility than that found at the service connection.

Back-siphonage: The backflow of water or any other substance into the potable water system due to a negative pressure existing either within a facility or the Authority's system.

Certified Tester: A trained person, approved by the Authority to test backflow prevention assemblies required by the Authority.

Containment: A method of backflow prevention that requires a backflow prevention assembly on the customer's service line.

Contaminant: Any substance which, when present in water, tends to degrade the quality of the water so as to create an actual hazard to the public health through poisoning or the spread of disease.

Cross-connection: Any actual or potential connection between the Authority's system and a system containing a source or potential source of contamination or pollution.

Customer: Any person who receives service from the Authority.

Customer's Service Line: The pipe from the customer-side of the curb stop to the meter setting.

Customer's Plumbing~ System: All customer owned piping, fixtures and appurtenances used to transport potable water to, within and from a building including all residential and non-residential facilities.

Degree of Hazard: The evaluation of a customer's facilities to determine their potential risk to health, and the adverse effect upon the Authority's system in the event of backflow.

Double Check Valve Assembly (DCVA): An assembly composed of two single, independently operating, check valves with tightly-closing, resilient-seated shut-off valves at each end of the device and suitable connections for testing of the watertightness of each check valve.

Meter Setting: The location of the meter and components, including shut-off valves and any meter by-pass.

Pollutant: Any substance that when present in water tends to degrade the quality of the water so as to impair the potability of the water, but not to a degree which will create an actual hazard to the public health.

Premises: The property, building or other site to which service is furnished.

Owner: The person in whose name the property is deeded.

Reduced Pressure Zone Assembly (RPZA): An assembly composed of two single, independently operating, check valves, together with an automatically operated, pressure differential relief valve, located between the two check valves. The relief valve shall open to the atmosphere when the pressure differential between the supply pressure and the pressure in the zone between the two check valves is less than 2 (two) pounds. The device shall have a tightly-closing, resilient- seated shutoff valve directly attached to each end and suitable connections for testing of the watertightness of each check valve and the operation of the pressure differential relief valve.

Service: (1) Furnishing or readiness to furnish water for any purpose, including the extinguishments of fires, and/or (2) any installation or improvement or change in the service line or the system facilities, at the customer's request or as required by the Authority, and/or (3) any Authority activities related thereto.

System: The Authority's water supply, transmission and distribution facilities, in whole or in part.

II. STATEMENT OF POLICY

It shall be the policy of the Lehigh County Authority with regard to backflow prevention to: (1) protect its system by containment; (2) educate its customers to the hazards associated with cross-connections and backflow; and (3) aid the owner in identifying, and eliminating or controlling plumbing cross-connections within their facility.

III. RESPONSIBILITIES

A. Lehigh County Authority

1. To review and evaluate, on-site with the aid of the owner, proposed plans of all connections to the Authority's system, in order to determine the appropriate type of backflow prevention assemblies required to contain within the owner's premises any pollutant and/or contaminant which may enter the plumbing system through cross-connections.
2. To conduct periodic cross-connection surveys of all industrial and commercial customers' premises.
3. To notify in writing the owner of premises connected to the Authority's system of any corrective actions required in order to comply with the Authority's backflow prevention policy.
4. To ensure that the Authority's system is not designed or constructed in a manner which creates a cross-connection.
5. To immediately discontinue service to any premises where the Authority becomes aware that a serious threat to public health exists.
6. To discontinue service to any premises where an owner has not complied with the requirements of this policy, as determined by the Authority, within 30 days of being notified in writing of noncompliance.
7. To develop and implement an education program for all customers on the hazards of cross-connections, their control and elimination.
8. To furnish a residential dual check valve to all new residential customers upon their payment of the appropriate fee.
9. To furnish and install a residential dual check valve at the meter setting of existing residential customers.
10. To test, maintain and replace all residential backflow prevention devices required by this policy.

B. Owner

All Premises

1. To eliminate or control all cross-connections on his premises.

Nonresidential Class Premises

1. To install at his expense, any and all backflow prevention assemblies within an Authority specified time period of not less than 90 days which are required under this policy, upon being notified in writing by the Authority.
2. To repair or replace any backflow prevention assembly required under this policy, which is non-functional as determined by Authority-approved test procedures, within 30 days of the failed test date.
3. To have any backflow prevention assembly required under this policy tested within 30 days of the initial installation date, and annually thereafter, at his expense, and to maintain records of all testing and repair of the assemblies on the premises for a period of seven years.
4. To submit to the Authority all test reports and maintenance records within 14 days following the testing, repair, or overhaul of backflow prevention assemblies required under this policy.

C. Certified Tester

1. To have a backflow prevention assembly testing device that is maintained in proper working order.
2. To use only Authority-approved testing procedures when conducting tests on backflow prevention assemblies required by this policy.
3. To record, on forms provided by the Authority, the results of each test conducted on backflow prevention assemblies required by this policy.
4. To submit a copy of the test report to the owner of the backflow prevention assembly within seven days of testing the device.
5. To notify the owner of any device that has failed at the time of testing.

IV. SPECIFICATIONS AND APPROVAL FOR BACKFLOW PREVENTION ASSEMBLIES

All backflow prevention assemblies or air gap separations used in accordance with this policy to protect the Authority's system shall be approved by the Authority prior to installation and shall be in accordance with the strictest standards of the University of Southern California Foundation for Cross-connection Control and Hydraulic Research (USCFCCCHR) and American Society of Sanitary Engineering (ASSE). Backflow prevention assemblies used on private fire protection service lines shall be listed by Underwriters Laboratories (UL) or Factory Mutual System (FM).

All backflow prevention assemblies shall consist of a backflow prevention device located between two tightly closing, resilient-seated shutoff valves, with four properly placed resilient-seated test cocks. Only the following type of assemblies shall be allowed under this policy:

Double Check Valve Assemblies meeting ANSI/AWWA CS 10, having USCFCCCHR approval.

Detector Double Check Assemblies* meeting ANSI/AWWA CS 10, having USCFCCCHR approval, FM** and UL listed**.

Reduced Pressure Zone Assemblies meeting ANSI/AWWA C511, having USCFCCCHR approval.

Reduced Pressure Zone-Detector Assemblies* meeting ANSI/AWWA C51 1, having USCFCCCHR approval, FM** and UL listed**.

Dual Check Valve meeting ASSE 1024.

* By-pass meters used on detector assemblies shall be supplied and installed by the Authority at the owner's expense.

** FM/UL-listed backflow prevention assemblies must include FM-approved OS&Y gate valves.

V. EXISTING BACKFLOW PREVENTION ASSEMBLIES

Any existing backflow prevention assembly installed at the meter setting shall be allowed by the Authority to continue in service so long as the device is found to be operational through periodic testing, unless the degree of hazard is such that the existing backflow prevention assembly is no longer effective or presents an unreasonable risk to public health. Where the degree of hazard has increased, as in the case of a residential use converted to a commercial use, the Authority shall determine the type of required backflow prevention assembly to be installed at the owner's expense within 90 days of a change in use.

VI. AUXILIARY WATER SOURCES

An Authority-approved backflow prevention assembly shall be installed at the service connection to every premises where there exists an auxiliary water supply.

Where the connection is between the Authority's water system and that of another public water supply system, no backflow prevention assembly shall be required, provided that, the other public water supplier has a backflow prevention/cross-connection program.

VII. LOCATION AND INSTALLATION OF BACKFLOW PREVENTION ASSEMBLIES

A. General Conditions

- I. All backflow prevention assemblies must be installed in an USCFCCCHR- or AWWA-approved manner and in conformance with the manufacturer's recommendations.
2. Backflow prevention assemblies shall be located so as to permit easy access and provide an adequate and safe working environment for maintenance, inspection, and testing.
3. The backflow prevention assembly must be protected from freezing, flooding, and mechanical damage.
4. The owner of the backflow prevention assembly must be able to isolate the device during normal business hours to permit testing and maintenance of the device. If, due to service requirements, isolation is not possible, a by-pass line equipped with an Authority-approved backflow prevention assembly must be installed.
5. The backflow prevention assembly must be installed in a horizontal alignment with the bottom of the backflow preventer between 12" to 30" above the floor and a minimum of 18" from any wall unless otherwise approved by the Authority prior to installation of the assembly.
6. Installation of backflow prevention assemblies in pits will only be allowed if no other type of installation is possible, and then only with prior Authority approval. All pits shall be constructed to the following specifications:
 - a. the pit interior shall be sized to provide a minimum separation of 18" between all piping and pit walls, and a minimum of 6 1/2 feet high;
 - b. the pit must be water tight;

- c. the pit opening and cover must be a minimum of 36" X 36" with a Bilco door or approved equal;
- d. the foothold inserts must be of steel or aluminum, must be a maximum of 12 inches apart, and must be installed so that the top foothold is within 12 inches of the pit opening and the bottom foothold is within 12 inches of the pit floor;
- e. a drain or automatic sump pump must be installed, and the drain line shall not be connected to a sewer;
- f. the pit must have adequate natural or electric lighting for testing, maintenance, and inspection of the assembly.

B. Domestic Service Lines

- 1. All backflow prevention assemblies on domestic service lines shall be installed immediately downstream of the water meter and before any connection to the service line. All connections to the service line upstream of the assembly, shall be permanently disconnected, or an Authority approved backflow prevention assembly shall be installed on the connection line.
- 2. In the event the Authority recommends that the backflow prevention assembly not be installed at the meter setting, as in the case of a Reduced Pressure Zone Device in a pit, the backflow prevention assembly shall be placed either in an aboveground, frost-proof shelter or installed immediately downstream from the point where the water service line enters a building. Any connections upstream of this point shall either be permanently removed or, where the connection is allowed to remain, an Authority-approved backflow prevention assembly shall be installed.

C. Private Fire Protection Service Lines

- 1. All devices on private fire protection service lines shall be installed before any connections or pumps.

VIII. THERMAL EXPANSION

When heated water is contained in the customer's facility as a result of a main line backflow prevention assembly being installed, special consideration should be made by the customer or his plumber with regard to thermal expansion. An auxiliary relief valve, expansion tank or other means of providing for thermal expansion should be installed on the internal plumbing system of the customer's facility to prevent damage to the customer's hot water heater and/or plumbing system.

IX. TYPES OF BACKFLOW PREVENTION DEVICES REQUIRED

Table 1 shall serve as a guide and partial listing for the type of backflow prevention assemblies required by the Authority, based on the degree of hazard associated with a given type of facility or its uses.

TABLE 1

The following shall require an **Air Gap (AG) Separation** or **Reduced Pressure Zone Assembly (RPZA)**:

1. Sewage Treatment Plants, Sewage Pump Stations, Sewage Ejectors
2. Irrigation Systems, Greenhouses
3. Plating Facilities
4. Hospitals, Mortuaries, Clinics
5. Photo-processing Lab.
6. Boiler Systems
7. Car Washes
8. Food Processing, Breweries
9. Printing Plants
10. Chemical-manufacturing Plants
11. Cooling Tower Recirculating Systems
12. Any systems connected to chemical agents, anti-freeze, or auxiliary water supplies
13. Heat Exchangers
14. Solar Energy Systems
15. Private Fire Protection Systems with hose connections within 1200 feet of an auxiliary water source.
16. Submerged inlets

17. Laboratories
18. Commercial Laundries
19. Premises with restricted inspection

The following shall require a minimum of a **Double Check Valve Assembly (DCVA)**:

1. Public Swimming Pools without submerged inlets
2. Private Fire Protection Systems without additives, booster pumps or auxiliary sources.
3. Restaurants
4. Commercial Buildings
5. Apartment Buildings
6. Supermarkets
7. Office Buildings
8. Barber Shops, Hairdressers

The following shall require a minimum of a Dual Check Valve (DCV)

1. Residential premises

APPENDIX A

A. THE PENNSYLVANIA SAFE DRINKING WATER ACT

109.608. CROSS-CONNECTIONS

A public water system shall not be designed or constructed in a manner which creates a cross-connection.

109.709. CROSS-CONNECTION CONTROL PROGRAM

- (a) No person shall introduce contaminants into a public water supply through a service connection of a public water system.
 - (1) It shall be the responsibility of the customer to eliminate cross-connections or provide backflow devices to prevent contamination of the distribution system from both backsiphonage and backpressure. Individual backflow preventers shall be acceptable to the water supplier.
 - (2) If the customer fails to comply with paragraph (1) within a reasonable period of time, the water supplier shall discontinue service after reasonable notice has been made to the customer.

- (b) At the direction of the Department, the public water supplier shall develop and implement a comprehensive control program for the elimination of existing cross-connections or the effective containment of sources of contamination, and prevention of future cross-connections. A description of the program, including the following information, shall be submitted to the Department for approval:
 - (1) A description of the methods and procedures to be used.
 - (2) An implementation schedule for the program.
 - (3) Legal authority for implementation of the program, such as, by ordinance or rules.
 - (4) A time schedule for inspection of nonresidential customers' premises for cross-connections with appropriate record keeping.
 - (5) A public education program for residential customers.
 - (6) A description of the methods and devices which will be used to protect the water system.

- (7) A program for the review of plans for new users to assure that no new cross-connections are developed.
- (8) Provisions for the discontinuance of water service, after reasonable notice, to premises where cross-connections exist.

B. LEHIGH COUNTY AUTHORITY - RULES AND REGULATIONS FOR WATER SERVICE

1. CONDITIONS OF SERVICE

- a. **Cross-Connections**: No cross-connections will be permitted.
- b. **Backflow Prevention**: A backflow prevention assembly shall be installed on all service lines.

2. BACKFLOW PREVENTION

All installations, maintenance and operation shall be in accordance with the Authority Backflow Prevention Policy.

- a. **Cost and Ownership**: All new and existing non-residential customers shall install a backflow prevention assembly approved by the Authority. The cost of furnishing and installation of the assembly shall be the customer's responsibility. The customer shall retain ownership of the assembly.

All new residential customers shall install a backflow prevention assembly, which will be supplied by the Authority. The device will be installed directly after the meter and in a configuration specified and approved by the Authority. The device will remain the property of the Authority.

All existing residential customers shall have a backflow prevention assembly installed and supplied by the Authority, on a schedule to be determined by the Authority and at no cost to the customer. The device will remain the property of the Authority.

- b. **Normal Maintenance and Testing**: Non-residential customers will be responsible for periodic testing and maintenance of the devices as required by the Authority.

The Authority will be responsible for periodic testing and maintenance of the residential devices.

LCA APPROVED BACKFLOW TESTERS

NOTE: If a tester has an expired certification card on file with us, they are responsible for providing us with an updated card when available. Please ensure that these testers have renewed their certification before they perform your test(s). Questions should be directed to Richard Dougherty at 610-398-2503 or richarddougherty@lehighcountyauthority.org.

	APPROVED TESTERS	LICENSE #	EXP DATE
ABC AUTOMATIC SPRINKLER COMPANY 1735 OWL CREEK ROAD LEHIGHTON, PA 18235 610-377-4100	CHAD ANDREWS	6850	12/31/2017
	RUSSELL COOK	28224	2/28/2018
ABCO FIRE PROTECTION, INC. 1391 FREY RD PITTSBURGH, PA 15235 412-373-7730	DANIEL FAY	26432	5/31/2017
	RONALD KIRKPATRICK	26435	5/31/2017
	KYLE SHAFFER	26438	5/31/2017
BROC MECHANICAL, INC. 1215 N 13TH ST WHITEHALL, PA 18052 610-433-4444	KEITH SEYMOUR	20591	5/31/2017
BURKHARDT MECHANICAL 2700 OLD PRICETOWN ROAD TEMPLE, PA 19560 610-921-0234	CHAD SPOHN	5755	2/28/2017
CAPIE SPRINKLER INSPECTIONS, LLC. 305 N MILL STREET NANTICOKE, PA 18634 570-301-3780	STEVEN CAPIE	10561	5/31/2016
	LUKE CAPIE	29189	6/30/2018
COMMONWEALTH FIRE PROTECTION 2749 CREEK MILL RD LEOLA, PA 17540 717-656-2981	MICHAEL MCMECHEN	9629	2/28/2017
	MATTHEW TROUGH	11414	4/30/2018
	SHAUN MILLER	11938	10/31/2016
COOPERSBURG PLUMBING CO. PO BOX 307 COOPERSBURG, PA 18036 610-282-1894	CHARLES BELL	12666	7/31/2018
DELUXE PLUMBING & HEATING 2720 JACKSONVILLE RD BETHLEHEM, PA 18017 610-625-3699	CHAD HABERLE	29191	6/30/2018
D S CORRELL CO INC 237 HOFFMAN ROAD WIND GAP, PA 18091 610-759-8375	MATTHEW ENRIGHT	11399	4/30/2018
	DALE NESFEDER	8405	10/31/2016
ELEK PLUMBING 1101 AIRPORT ROAD ALLENTOWN, PA 18109 610-432-7001	JUSTIN SHELAK	10169	7/31/2018

EUGENE W HANKEE & SON 4894 ALDEN DRIVE WALNUTPORT, PA 18088 610-767-4381	EUGENE HANKEE III	14632	9/30/2017
GEORGE MERTZ PO BOX 340 TREXLERTOWN, PA 18087 484-824-2545	GEORGE MERTZ III	3123	2/28/2017
H T LYONS 7165 AMBASSADOR DRIVE ALLENTOWN, PA 18106 610-530-2600	HAROLD EDLING	6855	12/31/2017
	MARK LANGKAMER	5752	10/31/2017
	ANDREW SCHMICK	7237	2/28/2016
KEYSTONE FIRE PROTECTION 433 INDUSTRIAL DRIVE NORTH WALES, PA 19454 215-641-0100	JOHN DILELLA	25666	1/31/2017
	WILLIAM BLITHE	25590	1/31/2017
	JOSEPH MORAVEK	25613	10/31/2017
	RONALD RECZEK	25615	1/31/2017
	BRETT BARRALL	12402	11/30/2017
	DANIEL KOPFLE	9626	2/28/2017
	JOSEPH MCCANN	11490	7/31/2018
ROBERT WELCH	12418	11/30/2017	
KISTLER OBRIEN 2210 CITY LINE ROAD, BETHLEHEM, PA 18017 610-266-7100	JOHN HUNKELE	10721	11/30/2016
	HALEY RAUDABAUGH	26546	5/31/2017
	SEAN GROZIER	28238	2/28/2018
	AUGUST ROUSE	28233	2/28/2018
	FRANK TALLEY	28232	2/28/2018
	CHRISTOPHER GALIANO	28227	2/28/2018
	BRETT GAWRONSKI	9164	2/28/2016
	JAMES FISHER	11853	7/31/2016
	RYAN CRAWFORD	25682	1/31/2017
	DAVID HUJSA	27743	12/31/2017
	JOHN BRUNNER	27742	12/31/2017
	KEVIN FRY	27935	1/31/2018
	JASON HODERMAN	25684	2/28/2017
	JAMES HOLZINGER	26544	5/31/2017
	SCOTT SCHMOYER	25689	1/31/2017
	BRYAN WILLIAMS	25691	2/28/2017
CHRISTOPHER MULLIN	25686	1/31/2017	
JERRY NORRELL	25687	2/28/2017	
STEVE PINGARELLI	11859	7/31/2016	
NELSON FOGLE	29622	9/30/2018	

MARCO	MARK BENZINGER	26336	4/30/2017
320 COMMERCE DRIVE EXTON, PA 19341	ADAM GROSSMAN	27079	8/31/2017
610-363-2233	MICHAEL LEONARD	26058	2/28/2017
	DAVID ORTEGA III	25674	2/28/2017
	THOMAS SERBIN	25677	1/31/2017
	JOSH THOMAS	26609	6/30/2017
M&M MECHANICAL	DOMINIC CIPOLLA	18380	3/31/2016
418 PARK RD FLEETWOOD, PA 19522	FRANCIS FORSTER	14624	8/31/2016
610-944-7587			
MIKE GILLETTE PLUMBING	MICHAEL GILLETTE	25602	1/31/2017
5050 PINE STREET SCHNECKSVILLE, PA			
610-799-5455			
OLIVER FIRE PROTECTION	JAMES GEIST	16224	11/30/2017
501 FEHELEY DR KING OF PRUSSIA, PA 19406	CHRISTOPHER HENNIGAR	24437	5/31/2016
610-277-1331	LOUIS MAIER	22033	4/30/2018
	MICHAEL MCGOVERN	4640	2/28/2017
	TIMOTHY MCLAUGHLIN	20931	9/30/2017
PENN FIRE PROTECTION INC	RICHARD MEASE	11434	2/28/2018
1768 ROUTE 522 PO BOX 146 SELINGSGROVE, PA 17870	MARK HAYES	8322	7/31/2016
570-374-4508			
PRECISION FIRE PROTECTION	THOMAS BERRY	26604	5/31/2017
97 MECHANIC STREET REINHOLDS, PA 17569			
717-484-2642			
PREMIUM FIRE & SECURITY	JAMES QUEEN	11189	10/31/2017
505 SCHOOLHOUSE ROAD KENNETH SQUARE, PA 19348			
610-444-8180			
READING FIRE SYSTEMS	JMAES WENTZEL	24227	4/30/2016
3525 ST LAWRENCE AVE READING, PA 19606			
484-955-7910			
REMCO, INC	ANGEL BERRIOS	26109	3/31/2017
7264 PENN DR ALLENTOWN, PA 18106			
610-391-9530			

S.A. COMUNALE CO, INC	ROBERT BRUNNER	13414	5/31/2016
2130 SPRING ST READING, PA 19609	ALEX CHRISTIE	25044	10/31/2016
610-670-3960	DARRIAN MALONE	11937	10/31/2016
	ROBERT DREMOCK	8603	5/31/2017
	KEITH READINGER	25042	10/31/2016
	MARIO REYES	8490	1/31/2017
	BERNARD VENSLOSKY	8567	3/31/2017
	JOSEPH ANGELINE	8312	6/30/2016
	DOUG MASESSA	25045	10/31/2016
	THOMAS SEYFERT	25046	10/31/2016
S AGENTIS/MR. ROOTER PLUMBING	JAMES SMITH	7284	4/30/2016
102 MAIN ST APT A STOCKERTOWN, PA 18083			
610-867-6001			
S&L MECHANICAL INC.	CRAIG BOYER	17006	4/30/2018
154 FRANKLIN STREET WEST READING, PA 19611	JOHN KOWALSKI	17004	4/30/2018
610-374-1615			
FAX 610-374-1616			
EMAIL: OFFICEADMIN@SANDLMECHANICAL.COM			
SIMPLEX GRINNELL LP	MIKE WIREN	11981	11/30/2016
6330 HEDGEWOOD DR STE 250 ALLENTOWN, PA 18106	CHRISTOPHER BECKER	8938	5/31/2018
610-398-7260	KEVIN DOUGHERTY	10744	11/30/2016
	DANIEL MARTH	11530	7/31/2018
	MICHAEL HUCKS	8983	6/30/2018
TARGET FIRE PROTECTION, INC	RALPH DEOLIVEIRA	25003	10/31/2016
199 DRAKESTOWN RD LONG VALLEY, NJ 07853			
855-852-2860			
TILLEY FIRE EQUIPMENT COMPANY	KENNETH AXE	25586	1/31/2017
280 N BROAD STREET DOYELSTOWN, PA 18901	JOSEPH STOUGH	26350	4/30/2017
215-345-8066	KARL HEISELMOYER	27139	10/31/2017
	ROBERT ROCH	25616	1/31/2017
TRAGO FIRE PROTECTION LLC	JASON FIRESTINE	10746	11/30/2016
1014 NEW HOLLAND AVE LANCASTER, PA 17601			
717-824-4175			
VFP FIRE SYSTEMS	KEITH READINGER	25042	10/31/2016
9662 OLD ROUTE 22 PO BOX 467 BETHEL, PA 19507			
717-933-2063			

VICTORY FIRE PROTECTION

225 W HOWARD ST STOWE, PA 19464
610-327-0300

PERRY ALLEN

26335 4/30/2017

WELSH SERVICES

654 SADSBUY RD PARKESBURG, PA 19365
610-284-1055

BRIAN WELSH

20906 5/31/2017

YOUNG PLUMBING & HEATING

60 EAST UNION BOULEVARD
BETHLEHEM, PA 18018
610-867-5682

RICHARD HUGHES

9760 7/31/2017