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September 19, 2013

Via Hand Delivery

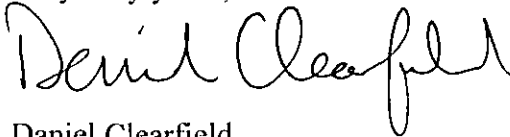
Rosemary Chiavetta, Secretary
PA Public Utility Commission
PO Box 3265
Harrisburg, PA 17105-3265

Re: Pennsylvania Public Utility Commission, Bureau of Investigation
and Enforcement v. Philadelphia Gas Works;
Docket No. C-2011-2278312 – Philadelphia Gas Works Leak Detection Pilot Program

Dear Secretary Chiavetta:

On behalf of Philadelphia Gas Works (“PGW”) enclosed for filing please find the original of its Leak Detection Pilot Program with regard to the above-referenced matter. Copies to be served in accordance with the attached Certificate of Service.

Very truly yours,



Daniel Clearfield

DC/lww
Enclosure

cc: Cert. of Service w/enc.

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**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Pennsylvania Public Utility Commission, :
Bureau of Investigation and Enforcement, : Docket No. C-2011-2278312
v. :
Philadelphia Gas Works :

**PHILADELPHIA GAS WORKS
LEAK DETECTION PILOT PROGRAM**

TO THE PENNSYLVANIA PUBLIC UTILITY COMMISSION:

Philadelphia Gas Works (“PGW” or “Company”) hereby submits this Leak Detection Pilot Program (“Pilot Program”) in compliance with the Opinion and Order entered by the Pennsylvania Public Utility Commission (“PUC” or “Commission”) on July 26, 2013 (the “Torresdale Settlement Order”), which became effective on August 5, 2013,¹ and approved the settlement between PGW and the PUC’s Bureau of Investigation and Enforcement (“I & E”) resolving the allegations contained in the I & E complaint that it filed in response to the natural gas leak and explosion on January 18, 2011 in the Torresdale section of the City of Philadelphia (“City” or “Philadelphia”).

I. INTRODUCTION

Safety is PGW’s ultimate priority – around the clock, year-round. PGW is continually focused on providing its customers with safe, reliable natural gas service and is especially focused in keeping its service lines and distribution mains delivering natural gas to its customers in a safe and reliable manner. PGW continually works to improve these efforts, and welcomes recommendations on how it can enhance its efforts.

¹ See, Secretarial Letter at Docket No. C-2011-2278312 dated August 7, 2013.

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Periodic gas leak surveys are an important part of PGW's safety efforts. The Pilot Program here proposed by PGW in compliance with the Torresdale Settlement Order will enhance PGW's leak surveys of its high pressure cast iron mains located in the City, and provide a reasonable basis for exploring and identifying practical measures that ultimately may be implemented by PGW on a permanent basis to further enhance leak detection in the Company's service territory.

Under its proposed Pilot Program, PGW proposes to use a threefold approach: (1) PGW will initiate a solicitation process to explore and identify alternative practical measures that can be implemented in PGW's service area during the 2014/2015 winter season to enhance PGW's existing leak detection programs;² (2) PGW will, as an interim approach to improving leak detection efforts, undertake additional year-round leak detection surveys on all the high pressure cast iron mains in the City using traditional measures;³ and (3) PGW will provide a written report to the Commission on or before June 1, 2015, describing: a) the results of the solicitation process and any enhanced leak detection program that PGW implements pursuant to that process, as well as b) the results of the additional surveys described in paragraph (2).

PGW believes that the following generalized schedule for the solicitation process will permit the selected vendor able to implement PGW's policy and procurement decisions during the 2014/2015 winter season:⁴

² The 2014/2015 winter season extends from December 1, 2014 to March 31, 2015.

³ PGW proposes to enhance the frequency of leak mobile surveys for (a) all high pressure (10-35 psig) cast iron mains to twice a year (or every 6 months) from the present once a year within the General Survey program; and (b) the 12-inch high pressure cast iron mains to six times a year (or every two months, year round) from the present two times a year during the winter period (December to March).

⁴ PGW reserves the right to revise this schedule to accommodate issues that may arise in the contracting or implementation process. *See* footnote 20, *infra*.

Item	Time Period
Issuance of RFI ⁵	30 Days from Date of Final Order
Response Submission Date	60 Days from issuance of RFI
PGW consideration of responses to RFI	Up to 90 Days from the submission of responses to the RFI
PGW issuance of RFP/RFQ	30 Days from PGW's selection of measure to improve PGW's leak detection program
Latest Date for Submission of Questions on RFP/RFQ	15 Days from issuance of RFP/RFQ
Mandatory Meeting	30 Days from issuance of RFP/RFQ
Submission Date	60 Days from issuance of RFP/RFQ
Notification Date	Up to 90 Days from issuance of RFP/RFQ
Target Date for Executed Contract	Up to 150 Days from issuance of RFP/RFQ

This three-fold approach is designed to enhance the Company's existing leak detection procedures in a timely and reasonable manner. This approach is substantially similar to the three-fold approach approved by the Commission for UGI Utilities, Inc. ("UGI") for the exploration of enhanced leak detection measures.⁶ Consistent with the direction from the Commission, PGW will, if possible, select a different vendor than UGI to give the Commission and all interested stakeholders the opportunity to evaluate more than just one of the various technologies available.

PGW requests that the Commission approve the implementation of the Pilot Program, as proposed. PGW also requests that the Commission consider and approve the Pilot Program on an expedited basis following the close of the public comment period so that PGW has ample time

⁵ As fully explained below, PGW, as a municipal utility, follows "RFI/RFP/RFQ" process for contracting when it is not clear whether goods or services are to be procured.

⁶ *PUC, Bureau of Investigation and Enforcement v. UGI Utilities, Inc.*, Docket No. C-2012-2308997, Final Order entered July 1, 2013.

to complete all of the necessary phases of the solicitation process in order to implement the selected enhanced leak detection measures during the 2014/2015 winter heating season.

II. BACKGROUND

PGW is wholly owned by the City. PGW consists only of the real and personal assets of the City that are used for the acquisition, storage, processing, and distribution of natural gas within the City's borders. PGW's mission is to provide safe, reliable gas service to the citizens of Philadelphia at a reasonable cost.

PGW is a jurisdictional "city natural gas distribution operation" as defined by 66 Pa. C.S. § 102 and is engaged in, *inter alia*, the provision of public utility service for compensation as a natural gas distribution company ("NGDC") within Philadelphia. PGW, as a provider of public utility service for compensation as a city natural gas distribution operation, is subject to the power and authority of the Commission pursuant to Section 2212(c) of the Code, 66 Pa. C.S. § 2212(c).

PGW's system has more than 6,000 miles of service lines and distribution mains⁷ which deliver natural gas to approximately 519,000 customers. The total mileage includes fewer than 100 miles of high pressure cast iron main.⁸

PGW is typical of gas distribution systems which serve older, urban areas in that a large percentage of its mains are cast iron with some unprotected steel, with the balance made up of plastic. Furthermore, because PGW serves such a highly concentrated, urban area, it has fewer miles of main than other similarly sized gas utilities. Of PGW's 3,026 miles of gas mains, 1,524

⁷ PGW's distribution system contains approximately 3,000 miles of mains and 3,000 miles of services. PGW owns and operates all the service lines from the mains to the meters. There are no customer-owned service lines in the PGW territory. Service lines are also referred to as services.

⁸ See *Petition of Philadelphia Gas Works for Approval of its Long-Term Infrastructure Improvement Plan*, PUC Docket No. P-2012-2337737, Opinion and Order entered April 4, 2013, at p. 8, Table 1.

miles or 50% are cast iron. Of those 1,524 miles of cast iron main, over 1,239 miles, or over 81% of those mains, are more than four inches in diameter – a significant factor since larger diameter cast iron mains have a lower breakage rate and incident experience.

PGW's gas distribution system was designed and constructed as a "utilization pressure" or low pressure system. In fact, PGW operates almost all of the cast iron portion of its system at 0.25 pounds per square inch (or 6.92 inches of water column) – significantly lower pressure than most other gas utilities. The low pressure nature of its system has and continues to contribute to the overall safety of the system.

Despite the age of its system, the vast majority of PGW's cast iron mains have never experienced a break. As with all gas distribution systems, PGW's system does experience gas leaks. In this regard, PGW has adopted and performed leak surveys since as early as 1954, well before the implementation of federal gas safety regulatory requirements. In fact, PGW has always adopted policies which generally require leakage surveys far more frequently than applicable federal gas safety requirements and conducts surveys in instances when no federal requirement exists. PGW's practices and procedures applicable to leak surveys demonstrate its serious commitment to a completely safe distribution system. PGW conducts a leakage survey of all structures in the roadway every year and all structures in the footway every three years despite the fact that federal gas safety standards only require such a leakage survey every five years. PGW surveys in advance of all resurfacing or paving projects, blasting or implosion activities. PGW also conducts three (3) winter patrols of the cast iron areas of the system even though these surveys are not required under federal law.

In the Torredale Settlement Order, the Commission directed PGW to "explore enhanced leak detection measures and file a pilot program to utilize one or more of those enhanced leak

detection measures.”⁹ Notice of the Pilot Program will be published in the *Pennsylvania Bulletin*, and interested parties may file comments within twenty (20) days from the date of publication.

PGW submits that the Pilot Program, as proposed below, provides a reasonable basis for exploring and implementing enhanced leak detection measures throughout PGW’s service area. PGW therefore requests that the Commission approve the implementation of the Pilot Program as explained in greater detail below.

III. CURRENT LEAK DETECTION PROCEDURES

Before describing PGW’s proposed pilot program in response to the PUC’s Torresdale Settlement Order, it will be helpful to review PGW’s existing leak detection efforts in greater detail. Recognizing the importance of prompt and effective leak detection capability in protecting public safety and the environment, the Commission’s regulations direct NGDC’s to comply with the federal gas pipeline safety regulations.¹⁰ With respect to leak detection, the federal regulations require each operator of a natural gas distribution system, such as PGW, to conduct periodic leakage surveys of its distribution mains. A brief discussion of the key sections in the federal regulations can be found below:

- **Section 192.723, Distribution systems:** Leakage surveys, requires operators to conduct periodic leakage surveys using leak detectors in several locations. Leakage survey intervals will vary depending on the location of the systems (inside or outside of a business district).

⁹ *Torresdale Settlement Order*, at p. 28. The Commission further directed that if at all possible, PGW should utilize a different vendor than UGI to give the Commission and all interested stakeholders the opportunity to evaluate more than just one of the various technologies available.

¹⁰ 52 Pa. Code § 59.33. The federal requirements are set forth at 49 U.S.C. §§ 60101, *et seq.*, and implemented in 49 CFR Parts 191-193, 195 and 199. These federal regulations, which were promulgated by the U.S. Department of Transportation (“DOT”), Pipeline and Hazardous Materials Safety Administration (“PHMSA”), Office of Pipeline Safety (“OPS”), include leak detection provisions and considerations in several sections of 49 CFR parts 192 and 195.

Stated simply, Section 192.723 requires that a leakage survey be conducted over a residential pipeline system at least once every 5 years.¹¹ It further requires that a leakage survey be conducted in business districts at intervals not to exceed 15 months.¹²

- **Part 192 Subpart P, Gas Distribution Pipeline Integrity Management (DIMP)**, requires operators to have a leak management program. The objective of this plan is to get operators to survey their lines for leaks and have a process by which they will manage and repair leaks that are identified.

In applying these gas safety requirements there is, of necessity, a balancing of the paramount goal of safe operation with the need to operate natural gas facilities in a cost effective and prudent manner. Thus, applicable federal standards recognize and apply the concept of risk assessment and quantification so that gas safety efforts are directed to the areas of greatest need, which may change over time as risks change. PGW employs engineers and other professionals, as well as software tools, to assess risks and maximize gas safety efforts.

Using this analytical approach, under its current leak detection procedures, PGW conducts numerous patrols and leak detection surveys:

- Attachment 1 contains a table that summarizes all of PGW's existing leak detection surveys.
- Attachment 2 is a copy of PGW's Distribution Department Bulletin #127 ("Leak Survey Bulletin") which establishes PGW's minimum schedule for leakage surveys and provides a detailed description of said surveys.

In addition to establishing a minimum frequency for various types of leakage surveys, the Leak Survey Bulletin provides that each leakage

¹¹ 49 CFR § 192.723(2) ("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"). PGW, along with other operators in the gas industry (such as UGI), considers it impractical to conduct electrical surveys over unprotected distribution lines subject to 49 CFR § 192.465(e). Thus, PGW utilizes leak surveys and monitors the condition of these assets through data gathered from routine maintenance activities.

¹² 49 CFR § 192.723(1) ("A leakage survey with leak detector equipment must be conducted in business districts, including tests of the atmosphere in gas, electric, telephone, sewer, and water system manholes, at cracks in pavement and sidewalks, and at other locations providing an opportunity for finding gas leaks, at intervals not exceeding 15 months, but at least once each calendar year").

survey will utilize leak detection equipment to test the atmosphere system in manholes, at cracks in the pavements and sidewalks and at other locations, such as, gas and water curb stop boxes, sewer vents, etc. These procedures maximize PGW's ability to discover gas leaks before they become safety concerns.

Each of these surveys involves the use of highly sensitive leak detection equipment and visual inspection of over-the-main surface areas and vegetation as appropriate. Currently, PGW utilizes the following instruments for leak detection:

- Parts per Million ("PPM") leak detectors – parts per million gas detection instruments used by every PGW first responder employee.
- Optical Methane Detection ("OMD") mobile units – vehicle mounted units which detect trace amounts of gas while driven through the city. Used year round and covering every city street.¹³

The details of PGW's leak investigation procedures are established through PGW's *Distribution Department Bulletin #212 ("Leak Response and Investigation Procedure")*. As reflected in the Leak Response and Investigation Procedure, the overriding objective of PGW's efforts to investigate gas leaks is "Actions Must Always Be Taken to Protect People First and Then Property." This Procedure establishes the PGW's minimum requirements for investigation of customer home leaks, street leaks, underground street troubles and general street troubles. For all reported outside odor complaints, fire and police emergencies and all reported water leaks and cavities, PGW's Leak Response and Investigation Procedure includes the industry standard "area check" to determine any leak migration and provides for numerous additional safety inspections in addition to planned survey work. Furthermore, all inside leak complaints are subject to a minimum requirement of three safety checks: the basement of the home of the customer reporting the leak and the basements of the homes of the residents on both sides of reporting

¹³ The OMD units replaced all of the flame ionization gas detection units, which PGW had been utilizing since the early 1970's when that technology was first introduced. The switch to OMD began in 1998.

customer's premises. If a reading or odor is detected, PGW personnel are required to investigate at least five (5) properties in the surrounding area: the affected home, the contiguous homes and two additional homes neighboring the affected home. Again, these required procedures meet or exceed industry standards.

PGW's personnel have worked with staff in the Commission's Gas Safety Division to develop its current leak detection procedures, and PGW believes that its current procedures meet, but exceed, the applicable federal pipeline safety laws incorporated by reference into the Commission's regulations at 52 Pa. Code § 59.33 and all other applicable Commission regulations. However, as set forth below, PGW welcomes the opportunity to enhance its current practices, for improved safety and reliability.

IV. PILOT PROGRAM

PGW continually works to improve its safety efforts (which include the above-described leak detection procedures), and welcomes recommendations on how it can improve. PGW therefore proposes to implement the Pilot Program in conjunction with the above-described current leak detection procedures.

PGW submits that the Pilot Program, as proposed, provides a reasonable basis for exploring and implementing enhanced leak detection measures throughout the City. PGW proposes to enhance PGW's leak surveys of its high pressure cast iron mains in the City and to undertake a solicitation process to explore and identify practical measures that ultimately may be used to further enhance PGW's current leak detection procedures.

Under its proposed Pilot Program, PGW will use a threefold approach: (1) PGW will initiate a solicitation process to explore and identify alternative practical measures that can be implemented in PGW's service area during the 2014/2015 winter season to enhance PGW's

existing leak detection programs; (2) PGW will, as an interim approach to improving leak detection efforts, undertake additional year-round leak detection surveys on all high pressure cast iron mains in the City using traditional measures; and (3) PGW will provide a written report to the Commission on or before June 1, 2015, describing: a) the results of the solicitation process and any enhanced leak detection program that PGW implements pursuant to that process, as well as b) the results of the additional surveys described in paragraph (2).

Under the first part of its proposed Pilot Program, PGW will undertake a solicitation process to seek proposals from interested parties for alternative natural gas leak detection measures. Through the applicable multi-stage solicitation process, PGW will solicit information and, ultimately, proposals from interested parties that include alternative approaches, services, surveys, patrols, processes, procedures, equipment, and/or technology that are designed to enhance or improve the existing natural gas leak detection surveys and patrols currently performed by the Company for its natural gas facilities. The Company will enter into an appropriate agreement with the selected vendor to test the proposed enhanced leak detection measures on certain natural gas facilities located in the City during the 2014/2015 winter season. The solicitation process is further explained in Section V below.

As part of the second part of its proposed Pilot Program, PGW will increase the frequency of leak detection surveys for its high pressure mains, which are defined as higher risk under PGW's Distribution Integrity Management Program ("DIMP").¹⁴ The focus on these mains compliments, and is consistent with, PGW's Long Term Infrastructure Improvement Plan

¹⁴ PGW's DIMP plan was reviewed by Commission staff, and was found to be consistent with the LTIIIP. *Petition of Philadelphia Gas Works for Approval of its Long-Term Infrastructure Improvement Plan*, PUC Docket No. P-2012-2337737, Opinion and Order entered April 4, 2013. The DIMP plan also underwent further Commission review by the Commission's Gas Safety Division.

(“LTIIP”) which gives greatest priority to the removal of 12-inch and larger high pressure mains (due to recent incidents with 12-inch mains on PGW’s and UGI’s distribution systems).¹⁵

Specifically, PGW proposes to enhance the frequency of mobile leak surveys: (a) for all high pressure (10-35 psig) cast iron mains to twice a year (or every 6 months) from once a year as occurs today pursuant to the General Survey program; and (b) for all 12-inch high pressure cast iron mains, six times a year (or every two months, year round) compared to today’s two times a year during the winter period (December to March). PGW will employ its existing over-the-main mobile survey technique and equipment for said additional surveys.

If a leak is discovered, it will be investigated consistent with PGW’s Leak Response and Investigation Procedure.¹⁶ Under current procedures, if a hazardous condition exists, immediate action will be taken by PGW and each segment of the pipeline that is deemed unsafe will be repaired, replaced, or removed from service.

The last part of the proposed Pilot Program is a commitment to provide a report of the results of its enhanced leak detection efforts. On or before June 1, 2015, PGW will provide the Commission with a written report that describes the results of the solicitation process and any alternative natural gas leak detection measures implemented under the Pilot Program.¹⁷ If the enhanced leak detection measures resulting from the Pilot Program are successful at finding more leaks or are more cost-effective on a system-wide basis (or both), PGW will give

¹⁵ *Petition of Philadelphia Gas Works for Approval of its Long-Term Infrastructure Improvement Plan*, PUC Docket No. P-2012-2337737, Opinion and Order entered April 4, 2013. Under the LTIIP, PGW will be removing cast iron main from inventory at a rate of approximately 25 miles per year.

¹⁶ PGW’s Distribution Department Bulletin #212 (“Leak Response and Investigation Procedure”).

¹⁷ PGW respectfully suggests that the most reasonable approach is to leave open the potential that none of the submissions provided in response to the solicitation process will be appropriate to implement; PGW will of course report the results of the solicitation and its proposed conclusions to the Commission once all solicitations have been received and evaluated.

consideration to the implementation of the such measures on a permanent basis to further enhance leak detection in the Company's service territory.

V. THE SOLICITATION PROCESS

PGW submits that the use of a solicitation process to explore and identify alternative practical measures is a prudent approach to determine what enhanced leak detection technologies exist in the marketplace and to ensure that a fair price is paid for the use of the selected services and/or equipment. .

As a municipal utility, PGW is required to follow municipal procurement rules. Those rules require different procurement processes depending on the type(s) of goods or services to be procured (e.g., equipment, professional services, unique articles, etc.). Under the Pilot Program PGW is seeking to evaluate and select from a range of potential leak detection enhancements. Accordingly, PGW proposes to begin the solicitation process by issuing a request for information ("RFI"). A copy of the proposed RFI is attached as Attachment 3.¹⁸ The purpose of the RFI is to gather necessary information to assist PGW in assessing opportunities for, improving performance and considering/implementing innovative and/or proven methodologies (goods or/or services) for leak detection. As explained in more detail below, once the nature of the desired solution is known (e.g., equipment, professional services, unique articles, etc.) the RFI will be followed by the appropriate Request for Proposals ("RFP") or Request for Quotations ("RFQ") process required under PGW's municipal procurement framework.¹⁹

¹⁸ PGW reserves the right to modify or supplement the proposed RFI at any time.

¹⁹ The use of either an RFP or an RFQ is governed by solicitation procurement rules applicable to PGW. Under these rules, generally, contracts for professional services or for professional services and equipment would be obtained by way of a separate RFP process, and contracts for non-professional services and/or equipment only would be obtained by way of a separate RFQ process.

PGW intends (a) to issue the RFI within 30 days of entry of the Final Order approving the Pilot Program and (b) to commence the separate RFP/RFQ process with the goal of having the selected vendor able to implement PGW's policy and procurement decisions during the 2014/2015 winter season. PGW believes that the following generalized schedule for the solicitation process will accomplish said goals:²⁰

Item	Time Period
Issuance of RFI	30 Days from Date of Final Order
Response Submission Date	60 Days from issuance of RFI
PGW consideration of responses to RFI	Up to 90 Days from the submission of responses to the RFI
PGW issuance of RFP/RFQ	30 Days from PGW's selection of measure to improve PGW's leak detection program
Latest Date for Submission of Questions on RFP/RFQ	15 Days from issuance of RFP/RFQ
Mandatory Meeting	30 Days from issuance of RFP/RFQ
Submission Date	60 Days from issuance of RFP/RFQ
Notification Date	Up to 90 Days from issuance of RFP/RFQ
Target Date for Executed Contract	Up to 150 Days from issuance of RFP/RFQ

The RFI is intended to solicit input into how PGW can improve its existing leak detection programs. PGW is willing to evaluate the best thinking on leak detection and its potential application to PGW's service area. Accordingly, PGW's scope of interest in the RFI is not limited to only equipment/technology that could be used and applied to pipeline facilities and infrastructure in PGW's service area.

²⁰ PGW reserves the right to revise this schedule to accommodate issues that may arise in the contracting or implementation process. For example, the schedule includes a reasonable lead time for implementation by the vendor. However, it is possible that certain projects could require additional lead-time before the service and/or equipment could be properly implemented in the City's service area. If necessary, PGW may consider extending the vendor's commencement date to accommodate additional lead time needed for the proper implementation of the selected services and/or equipment,

The findings from the RFI are expected to inform the future policy and procurement decisions by PGW on its leak detection programs. Consistent with the Torresdale Settlement Order, PGW will seek to enter into contracts related to said policy and procurement decisions. To do this, following the RFI, a separate RFP/RFQ process will be commenced, consistent with PGW's policy and procurement decisions.²¹

Consistent with the direction from the Commission, PGW will, if possible, select a different vendor than UGI to give the Commission and all interested stakeholders the opportunity to evaluate more than just one of the various technologies available. The selected vendor will enter into a negotiated contract with PGW and will be subject to conditions normally required by PGW.

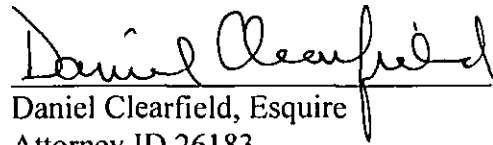
This solicitation process will enable PGW to identify and test the selected alternative natural gas leak detection measure or measures in the City during the 2014/2015 winter season. This will allow the Company to evaluate the alternative measure to determine whether they are practical means to enhance or improve the existing natural gas leak detection surveys and patrols currently performed by the Company for its facilities located in the City. The results of this evaluation will be reported to the Commission on or before June 1, 2015. If the enhanced leak detection measures flowing from the Pilot Program are successful at finding more leaks or prove to be more cost-effective on a system-wide basis (or both), PGW will give consideration to the implementation of such measures on a permanent basis to further enhance leak detection in the Company's service territory.

²¹ To be clear, the vendors will be qualified and selected in the separate RFP/RFQ process. By itself, the RFI is not intended to commit PGW to a particular course of action or to qualify possible vendors for a RFP/RFQ process.

V. CONCLUSION

PGW submits that the Pilot Program, as proposed, provides a reasonable basis for exploring and implementing enhanced leak detection measures throughout PGW's service area as directed in the Torresdale Settlement Order. PGW therefore requests that the Commission approve the implementation of the Pilot Program.

Respectfully submitted,



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September 19, 2013

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SUMMARY OF LEAK SURVEYSYear-Round Leak Surveys

Description	Method	Frequency
Roadway - survey of all structures in all roadways in PGW's service territory.	Mobile	Annually – Not To Exceed (“NTE”) 15 Months
Footway - survey of all structures in all footways in PGW's service territory.	Walking	3 Years – NTE 3.5 Years
Center City - survey of Center City Philadelphia.	Walking	Semi-annually NTE 7 months
Business District - surveys of all business areas in PGW's service territory.	Walking/Mobile	Annually – NTE 15 Months
Transmission - surveys of all transmission lines in PGW's service territory.	Walking/Mobile	Quarterly – NTE 4 Months
Franklin Mills - survey of the Franklin Mills' roof main and services.	Walking	Quarterly – NTE 4 Months
Plants and Gate Stations - survey of the underground structures located in PGW's Richmond and Passyunk natural gas plants and all of PGW's gate stations.	Walking	Annually – NTE 15 Months
Master Meter (By Agreement)	Walking	3 Years – NTE 3.5 Years
Major Parades, Bike Race - surveys of major parade routes and “Procyling Tour” bike race routes.	Mobile	2 – 4 Weeks Prior
Buried Bridge Mains - survey of all buried bridge mains in PGW's service territory.	Walking	Annually – NTE 15 Months
Blasting & Implosion - surveys of blasting and implosion sites.	Walking/Mobile	As notified by Fire Marshall or PA One Call
Special 30” Cast Iron - survey of 30” CI main from Richmond Plant to Passyunk Plant	Mobile	Quarterly – NTE 4 months

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Winter Leak Surveys

Description	Method	Frequency
General Winter Patrol – survey areas in which there is a high concentration of cast iron main using mobile optical methane detector technology (covers approximately 700 miles)	Mobile	December 1 through March 31
Prudent Winter Patrol - survey of the 600 blocks with top MRP model ranking every 4 weeks using mobile optical methane detector technology as soon as there is a measurable amount of frost reported for a period of five days. This survey continues until seven days after the last report of frost.	Mobile	Based on frost events ¹
12" Cast Iron Winter Frost Patrol - survey all 12-inch high pressure cast iron mains on a bi-monthly basis. ²	Mobile	Once every two months from December 1 through March 31

¹ PGW’s distribution crews will continue measuring/reporting ground frost on a daily basis and PGW will also track frost degree days.

Frost degree days will be tracked as follows: Beginning in November, the average daily temperature will be tracked and the difference of each degree below 27° F will be added to the cumulative degree tracker. Once the running total reaches a negative 150 FDD, the prudent winter Frost Patrol of the Company’s cast iron system will begin if it hasn’t already begun pursuant to the Company’s ground frost measurements. The frost degree days will be tracked throughout the winter, with degrees above 27° adding to the total, which is a negative number so that the result is a net of temperatures above and below 27°. The prudent winter Frost Patrol will end the later of seven days after the last report of ground frost measurements or when the running total reaches a positive 200 frost degree days.

² During a two month period.

Philadelphia Gas Works

Distribution Department Bulletin #127
("Leak Survey Bulletin")

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FIELD OPERATIONS

DISTRIBUTION DEPARTMENT

LEAK SURVEYS

Effective Date: August 2, 2013

Bulletin Number #127
Supersedes: DD Bulletin # 127
dated 1/14/13

I. Purpose

A leak survey is an industry standard preventive maintenance methodology which allows the operator to identify leaks before they become hazardous.

To comply with 49 CFR§ 192.723 which states in part “Each operator of a distribution system shall conduct periodic leakage surveys in accordance with this section”

To comply with Pennsylvania Utility Commission (PUC) request for surveys due to cold weather conditions, especially ORDER Docket No. M-2011-2271982, December 2011.

II. Definitions

Available Openings – Any ground opening that permits a sample of underground atmosphere. Examples are manholes, water boxes, curb boxes, vent boxes, cracks in paving, etc.

Frost Degree Days (FDD) – Measure of average temperatures below 27°F. Beginning in November of each year, the average daily temperature is tracked and the difference of each degree below 27°F is added to the cumulative degree tracker in order to calculate FDD.

Frost Event – Measurable amount of frost measured and reported by PGW’s Distribution crews through AIMS system for a period of five consecutive days. A measurable amount is defined as 3” or greater of frost over 50 % of reports through AIMS.

GDI – Gas Detection Instrument

Gas Facilities - PGW mains, services, valves, street regulators, etc.

Main Replacement Prioritization (MRP) – GIS-based computer risk model that establishes a main replacement priority ranking for PGW gas pipes.

Mobile Surveys - a gas leak survey conducted by trained personnel traveling by vehicle using either Optical Methane or Flame Ionization Equipment, set to detect 50 PPM.

Reading - A repeatable deviation on a Gas Detection Instrument (GDI) or equivalent instrument, expressed in Lower Explosive Level (LEL) or % gas. Where the reading is in an unvented confined space, consideration should be given to the rate of dissipation when the space is ventilated and the rate of accumulation when the space is resealed.

NOTE: Any reading inside a structure qualifies as a reading and requires physical action.

Any OUTSIDE reading of 2% LEL or higher is required in order to qualify as a recordable reading.



FIELD OPERATIONS

DISTRIBUTION DEPARTMENT

LEAK SURVEYS

Effective Date: August 2, 2013

Bulletin Number #127
Supersedes: DD Bulletin # 127
dated 1/14/13

Walking Survey - a gas leak survey conducted by trained personnel traveling on foot using an instrument capable of detecting 50 PPM.

III. General Leak Surveys Procedure

Leak Survey Description	Method	Frequency
Roadway	Mobile	Annually – Not to Exceed 15 Months
Footway	Walking	3 Years – Not to Exceed 3.5 Years
Center City	Walking	Semi-annually (FSD and Distribution alternately) not to exceed 7 months
Business District	Walking/Mobile	Annually – Not to Exceed 15 Months
Transmission	Walking/Mobile	Quarterly – Not to Exceed 4 Months
Franklin Mills	Walking	Quarterly – Not to Exceed 4 Months
Plants and Gate Stations	Walking	Annually – Not to Exceed 15 Months
Master Meter (By Agreement)	Walking	3 Years – Not to Exceed 3.5 Years
Major Parades, Bike Race	Mobile	2 – 4 Weeks Prior
Buried Bridge Mains	Walking	Annually – Not to Exceed 15 Months
Blasting & Implosion	Walking/Mobile	When notified by Fire Marshall or PA One Call
Winter Surveys	Mobile	December 1 through March 31 (see section IV)
30" Cast Iron (10-35psig) main from Richmond Plant to Passyunk Plant	Mobile	Quarterly – Not to Exceed 4 Months until replaced

Roadway

A mobile survey will be conducted using an Optical Methane Detector (OMD). This equipment shall be used to survey gas facilities under city streets. All OMD readings shall be confirmed with a GDI and reported in % LEL and/or % gas scale.

Footway

A footway survey shall be conducted by a walking survey and cover all available openings and adjacent areas near or over gas facilities from the curb, to the outside foundation wall and up to the meter on outside sets. The units shall be set for use at 50 PPM. In addition, PGW personnel will continue to visually detect the possible effects of leaking gas on vegetation and to detect underground street trouble conditions such as water, sewer and other underground or surface defects, that create cavities and depressions which could affect gas distribution facilities. Outside meter sets and above ground pipelines shall be checked for atmospheric corrosion defects and reported on maintenance order Form 537.



FIELD OPERATIONS

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LEAK SURVEYS

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Center City

Center City will be surveyed two times per year. Distribution will perform footway and OMD roadway surveys in November; FSD will perform the walking survey in May.

Business District

FSD will perform walking Business District Surveys annually in two areas opposite of Distribution footway surveys. The mobile OMD roadway survey will supplement this survey.

Transmission Line

TP-1 line shall be walking surveyed quarterly. In addition, this line will be patrolled on a monthly basis.

30" Cast Iron Line (10-35 psig – Richmond Plant to Passyunk Plant)

The 30" CI Main with operating pressure 10- 35 psig that runs from Richmond Plant to Passyunk Plant shall be mobile OMD – Surveyed quarterly. .

Franklin Mills

In addition to leak survey, the inspection shall include the visual observation of pipe support and expansion joints and report of safe and satisfactory conditions of the system. Outside meter sets and above ground pipelines shall be checked for atmospheric corrosion defects and reported on maintenance order. Distribution shall inspect and survey this line quarterly.

Plant and Gate Stations

The Plant and Gate stations will be surveyed by walking survey annually.

Master Meter

Premises being fed by master meter that have agreement with PGW for leak survey will be surveyed as required. Most are on a 3 year schedule regardless of system material (unprotected steel or plastic) to be surveyed within the survey area. The survey supervisor will maintain the listing of these areas.



FIELD OPERATIONS

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LEAK SURVEYS

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Major Parade and Bike Routes

Major parades and bike routes will be OMD surveyed two to three weeks prior to the event. So that repairs to PGW facilities and resurfacing can be completed prior to the event.

Buried Bridge Mains

Survey crews shall conduct a walking survey on all buried bridge mains. The crew shall include a visual observation of the condition of the bridge to determine the existence of obvious structural defects of the bridge and report any conditions which may appear hazardous to PGW structures.

Blasting and Implosion

Survey crews shall conduct a walking and mobile survey of the affected area. Surveys shall be conducted approximately one week prior to and immediately following the activity. A Superintendent or above shall determine the area affected, taking consideration, distance, age, size and material of PGW gas facilities and the scope of the work.

Note:

Additional surveys, not included in this policy, can be added upon the request of a Superintendent or above.

IV. Winter Survey Programs

Winter Leak Survey Type	Method	Frequency
General Winter Patrol	Mobile	December 1 through March 31
Prudent Winter Patrol	Mobile	Based on frost events (see definition)
12" Cast Iron (10-35 psig)	Mobile	Once every two months from December 1 through March 31

General Winter Frost Patrol

Starting on December 1st and continuing through March 31st of each year, OMD mobile survey will be conducted in areas of high concentration of cast iron mains from 7:00 am to 3:30 pm during normal workdays. Survey time will change to 10:00 pm to 6:30 am during frost events.



FIELD OPERATIONS

DISTRIBUTION DEPARTMENT

LEAK SURVEYS

Effective Date: August 2, 2013

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Supersedes: DD Bulletin # 127
dated 1/14/13

Prudent Winter Frost Patrol

Mobile OMD leak survey of the top 600 blocks slated for replacement through the Main Replacement Prioritization (MRP) model ranking will be initiated during all frost events or frost degree day criteria (see definitions). This survey will start when there is measurable amount of frost reported for a period of five days and continue until the 600 blocks are surveyed. After initiated, the survey must be completed within 20 working days. The list of top 600 blocks will be extracted from MRP by Distribution Planning Section and updated on a yearly basis.

12" Cast iron (10-35 psig) Winter Frost Patrol

All 12" cast iron mains operating at 10-35 psig throughout the city will be OMD-surveyed once every two months during the winter period (December 1st and continuing until March 31st). The list of blocks that include 12" cast iron mains operating at 10-35 psig will be extracted from PGW's GIS system by Distribution Planning Section and updated on a yearly basis.

Recordkeeping for Winter Surveys

All new leaks discovered as result of winter surveys will be recorded and tracked by leak classification type. The survey leak tracking will include the following:

- Day the leak was discovered
- Type of survey during which the leak was found
- Type of pipe (cast iron, unprotected bare steel, etc.)
- Classification either "Work Immediate" or "Repair or Recheck Schedule".
- In the case of "Work Immediate", the date of the repair and what was found.
- In the case of Repair or Recheck Schedule, the next required visit date and principal reading.

Frost Event Tracking

PGW's Distribution crews measure and report ground frost on a daily basis using the AIMS system. This will be a primary method of determining a frost event. It will be tracked by the Distribution Maintenance Section. See "Frost Event" definitions above.

The PUC requests that in order to better identify frost events, Frost Degree Days (which measure average temperatures below 27°F) will be tracked and recorded by Distribution Maintenance section starting on November 1st. This will be done in addition to PGW's normal frost-tracking procedures. See "Frost Degree Day (FDD)" definitions above.



FIELD OPERATIONS

DISTRIBUTION DEPARTMENT

LEAK SURVEYS

Effective Date: August 2, 2013

Bulletin Number #127
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dated 1/14/13

V. General Requirements for All Surveys

Investigation and repair of all detected leaks shall be in accordance with the following requirements:

- a) Distribution Department Bulletin #126 –Investigation and Repair of Underground Leaks (Work Initiation Schedule)
- b) Distribution Department Bulletin #212 – Leak Response and Investigation Procedure

VI. Associated Documentation

A. Relevant Code

CFR Part 49, 192.723
PUC ORDER-Docket No. M-2011-2271982 (on December 22nd, 2011)

B. Associated Bulletins

DD Bulletin #126 - Investigation and Repair of Underground Leaks (Work Initiation Schedule)
DD Bulletin #212 - Leak Response and Investigation Procedure
OMD Survey procedure (With Superintendent Operations and Maintenance)
Leak Survey and Winter Patrol Survey Handbooks (With Superintendent Operations and Maintenance)
Blasting Procedure
DD Bulletin #241 - Atmospheric Corrosion Procedure

C. Attachments

N/A

VII. Handbooks

Field Operations Supervisors Handbook Section V

VIII. Transaction Listing

TR 2009-01

Revised by N. Tollera 8/02/13

Raymond J. Welte
Director, Field Operations & Planning

Approved by:

Michael H. Jones
Vice President, Technical Compliance

Philadelphia Gas Works
Request for Information
Alternative Natural Gas Leak Detection Measures

RECEIVED

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**PA PER
SECRETARY'S BUREAU**

PHILADELPHIA GAS WORKS

REQUEST FOR INFORMATION

Alternative Natural Gas Leak Detection Measures

Dated:

Response Due Date: _____

RFI No.:

1 Background

Philadelphia Gas Works ("PGW") is considering issuing a competitive solicitation for alternative natural gas leak detection measures. In connection therewith, PGW is issuing this Request for Information ("RFI") to obtain information from vendors who may be asked to participate in such subsequent competitive process. PGW management would like to understand the full range of options that are available for alternative natural gas leak detection measures that are designed to enhance or improve the natural gas leak detection surveys and patrols currently performed by PGW for its natural gas distribution and transmission facilities located in the City of Philadelphia.

Responses to this RFI are due on or before: _____.

2 Overview of PGW/Current Leak Detection Approach

PGW is a municipally-owned utility managed by the Philadelphia Facilities Management Corporation (hereafter referred to as "PFMC"). PGW provides natural gas service to approximately 515,000 active accounts within the city of Philadelphia, using approximately 6,000 miles of natural gas mains and services. PGW is the only local distribution company currently distributing gas within the city of Philadelphia. The mission of PGW is to provide safe, reliable natural gas service to the citizens of Philadelphia at a reasonable cost. A summary of the natural gas leak detection surveys and patrols currently conducted by PGW, along with a description of the equipment currently utilized to perform such surveys, is set forth in Attachment A. PGW currently has in place a main replacement program which is described in Attachment B.

3 Scope of Information Requested

PGW is currently seeking information regarding alternative natural gas leak detection measures that would enhance or improve the natural gas leak detection surveys and patrols currently performed by PGW for its natural gas distribution and transmission facilities located in the City of Philadelphia.

Responses to this RFI may include alternative approaches, services, surveys, patrols, processes, procedures, equipment and/or technologies that are designed to enhance PGW's existing leak detection program. Responses must include:

- a statement/description of how the proposed alternative approaches, services, surveys, patrols, processes, procedures, equipment and/or technology would enhance PGW's existing leak detection surveys and patrols; and
- a statement/description of how PGW would measure the effectiveness of the enhancements included in the applicable response.

If a response entails the sale, lease or license to PGW of leak detection equipment or technology designed to improve PGW's existing natural gas leak detection program, the

response should include a description of how such equipment or technology will both "pinpoint" and "classify" a leak.

Following review of the responses to this RFI, PGW may issue a competitive solicitation (e.g., a Request for Proposals, a Request for Quotations or both) with the intent of entering into, as appropriate, a master pipeline support services agreement, equipment supply purchase/lease agreement, a technology license agreement or other appropriate agreement pursuant to which PGW will test the subject enhanced leak detection measures on certain natural gas distribution and transmission facilities located in the City of Philadelphia during the 2014/2015 winter period.

4 Responses Requested

In addition to the requirements set forth in Section 3, above, responses to this RFI should include, at a minimum, the following information:

- Business name and address of the respondent, and name and telephone number of the primary contact person.
- General qualification of the respondent, describing the company, its business and corporate philosophy, and any professional affiliations.
- Detailed description of the alternative natural gas leak detection measures.
- Technical specifications for the alternative natural gas leak detection measures, if applicable.
- List of utilities for whom the described leak detection measures are provided by respondent.
- Respondents to this RFI are asked to provide indicative pricing and/or their preferred pricing methodology for the alternative natural gas leak detection measures being described. This is not a request for respondents to provide pricing for their solutions, but rather how the pricing request should be structured in a future competitive solicitation.

5 Reservation of Rights

This RFI and the process it describes are proprietary to PGW and are for the sole and exclusive benefit of PGW. No other party, including any respondent to this RFI or any competitive solicitation which may be issued by PGW, is intended to be granted and rights hereunder. No material submitted as part of this RFI will be returned, and respondents are solely responsible for all expenses associated with responding to this RFI.

Any response to this RFI, including written documents and verbal communication, may be subject to public disclosure by PGW, or any authorized agent of PGW and any materials submitted or ideas elicited in response to this RFI may be used and/or implemented by PGW without compensation, including, without limitation, to develop and/or issue further solicitations.

This RFI will not result directly in a contract to provide any specific services to PGW. A firm's response – or lack of response – to this RFI will not provide that firm with any advantage or disadvantage if there is a solicitation for services or equipment related to the this subject matter in the future and will not preclude any firm which does not respond to this RFI from submitting a response to a future solicitation. PGW is not obligated to conduct subsequent discussions with any respondent to this RFI, and reserves the right to conduct discussions regarding its subject matter with firms that do not respond to this RFI.

6 PGW Contact

Questions concerning this RFI should be directed in writing towards _____, PGW Supply Chain Department, _____@pgworks.com, with a copy to: procurement@pgworks.com. Respondents may not contact other PGW personnel regarding this RFI.

Responses are due on or before: _____ to the contact listed above at Philadelphia Gas Works, Supply Chain Department, 800 W. Montgomery Avenue, Philadelphia, PA 19122.

Attachment A

Description of Existing PGW Leak Survey and Inspection Activities

Philadelphia Gas Works

Description of Leak Survey & Inspection Activities

A. Background

PGW is the largest municipally owned LDC in the country. PGW operates a distribution system which includes approximately 6,000 miles of gas mains and service lines; including over 3,000 miles in gas mains. The Company serves over one half million customers. PGW is typical of LDCs which serve older, urban areas in that its mains are mostly cast iron with some unprotected steel with the balance made up of plastic. Furthermore, because PGW serves such a highly concentrated, urban area, it has fewer miles of main than other similarly sized gas utilities. Of PGW's 3,026 miles of gas mains, 1,524 miles or 50% is cast iron. Of those 1,524 miles of cast iron main, over 1,239 miles, or over 81% of those mains, are more than four inches in diameter - a significant factor since larger diameter cast iron mains have a lower breakage rate and incident level. PGW's gas distribution system was designed and constructed as a "utilization pressure" or low pressure system. In fact, PGW operates almost all of the cast iron portion of its system at 0.25 pounds per square inch - significantly lower pressure than most other gas utilities. The low pressure nature of its system has and continues to contribute to the overall safety of the system.

Despite the age of its system, the vast majority of PGW's cast iron mains have never experienced a break. As with all gas distribution systems, PGW's system does experience gas leaks. In this regard, PGW has adopted and performed leakage surveys since as early as 1954, well before the implementation of federal gas safety regulatory requirements. In fact, PGW has always adopted policies which generally require leakage surveys far more frequently than applicable federal gas safety requirements and conducts surveys in instances when no federal requirement exists. PGW's practices and procedures applicable to leakage surveys demonstrate its serious commitment to a completely safe distribution system. PGW conducts a leakage survey of all structures in the roadway every year and all structures in the footway every three years despite the fact that federal gas safety standards only require such a leakage survey every five years. PGW surveys in advance of all resurfacing or paving projects, blasting or implosion activities. PGW also conducts three (3) winter patrols of the cast iron areas of system even though these surveys are not required under federal law. The following chart summarizes PGW's existing leakage survey program and compares the frequency of its leakage surveys to federal gas safety requirements:

<u>Program</u>	<u>PGW</u>	<u>DOT 192.723</u>
All Blocks	Roadway - annually	every 5 yr.
	Footway - three Years	Unprotected Steel. 3yrs.
All intersections	Annually	every 5 yr.
60-150# System	Quarterly	every 5 yr.
Center city	semi-annually	annually
Business areas	annually	annually
Ahead of resurfacing or paving	as notified	not required
General Winter Frost patrol	annually	not required
Prudent Winter Patrol	annually	not required
12" Cast Iron (10-35 psi)	semi-annually	not required

PGW's Distribution Department Bulletin #127 ("Leak Survey Bulletin") establishes PGW's minimum schedule for leakage surveys." In addition to establishing a minimum frequency for various types of leakage surveys, the Leak Survey Bulletin provides that each leakage survey will utilize leak detection equipment to test the atmosphere system in manholes, at cracks in the pavements and sidewalks and at other locations, such as, gas and water curb stop boxes, sewer vents, etc. These procedures maximize PGW's ability to discover gas leaks before they become safety concerns.

The details of PGW's leak investigation procedures are established through PGW's Distribution Department Bulletin #212 (Leak Response and Investigation Procedure). As reflected in the Leak Response and Investigation Procedure, the overriding objective of PGW's efforts to investigate gas leaks is "Actions Must Always Be Taken to Protect People First and Then Property." The Procedure establishes the Gas Works' minimum requirements for investigation of customer home leaks, street leaks, underground street troubles and general street troubles. For all reported outside odor complaints, fire and police emergencies and all reported water leaks and cavities, PGW investigative procedures, as reflected in the Leak Response and Investigation Procedure, includes the an "area check" to determine any leak migration and provides for numerous additional safety inspections in addition to planned survey work.

Furthermore, all inside leak complaints are subject to a minimum requirement of safety checks of two building basements, the home of the customer reporting the leak and the homes of the residents on both sides of reporting customer's premises. If a reading or odor is detected, PGW personnel are required to investigate at least five (5) properties in the surrounding area: the affected home, the contiguous homes and two additional homes neighboring the affected home. Again, these required procedures meet or exceed regulatory standards.

Overall, the good operational condition of PGW's distribution system combined with aggressive leakage detection and leakage investigation procedures which exceed regulatory standards provide PGW customers and Philadelphia residents with maximum assurance of a safe,

reliable system. Indeed, PGW prides itself on its exemplary safety record and its ongoing commitment to the safety of the public who live and work on or around its gas delivery system.

B. Inspections and Surveys

As the foundation for the inspection and survey program, PGW has existing procedures in place providing for winter patrols of the cast iron portions of its distribution system. In fact, PGW has been performing mobile leakage surveys of its system since the technology became available in the early 1970's. First with mobile flame ionization equipment and later with upgraded Optical Methane Detection (OMD) mobile unit surveys. Under PGW's existing survey procedures, vehicles equipped with Optical Methane Detection mobile equipment survey PGW's distribution system throughout the year.

Because PGW believes that any and all breaks in the cast-iron portion of its distribution system are potentially hazardous, PGW conducts the General Winter Frost Patrol equally on all blocks served by cast iron mains. The normal start-up date for PGW's General Winter Frost Patrol is the 1st of December. This General Winter Frost Patrol has proved itself to be a valuable tool in assuring the safety of PGW's distribution system and protecting the general public.

In response to the Commission's Order of September 13, 2000, PGW initiated an additional inspection program which specifically focused on the "higher risk" portion of PGW's distribution system as identified by PGW ("Prudent Winter Patrol"). PGW currently has in place a main replacement program (See attached document entitled "Main Replacement Programs") which prioritizes mains that need to be replaced on a project-by-project basis based on a risk assessment of all the mains based on a number of factors:

- Main Breakage History
- Leak History
- Breakage Zones (Calculated)
- Main Pressure
- Main Material
- Main Size
- Main Age
- Gas Leakage Migration Data
- Depth of Main
- Type of Paving (Continuous vs. Lawns)
- Public Buildings – Population Density

The Prudent Winter Patrol focuses its inspection efforts on the portions of PGW's system which have been identified for replacement within PGW's main replacement program. The MRP top 300 mains. Furthermore, the criteria for replacement along with the frequency of patrol (bi-weekly) of these higher risk areas effectively account for and closely scrutinize the potential effects (leaks and breaks) that corrosion and frost may have on certain portions of the distribution system, particularly the cast iron portion.

The Prudent Winter Patrol is conducted with vehicles equipped with state-of-the-art Optical Methane Detection equipment. These vehicles patrol higher risk blocks (to the best of PGW's ability) on a bi-weekly basis and provide continuing surveillance of higher risk blocks every two weeks. This supplemental Prudent Winter Patrol utilize established PGW Block Survey Procedures and Leak Investigation Procedures, as discussed above, including an area check when required and a house check at the front foundation wall.

As set forth in PGW's December 5, 2011 Comments to the Commission's Order, PGW revised both its General Winter Frost Survey and Prudent Winter Survey. PGW supplemented the General Winter Frost Patrol surveys by doing a separate survey of its 12 inch cast iron high pressure (10-35 psi) main. PGW's also started two additional enhancements to the Prudent Winter Frost Patrol. First, PGW doubled the survey coverage area to the top 600 blocks in the MRP model ranking. These 600 blocks are surveyed on a monthly basis after frost begins. Second, PGW now calculates Frost Degree Days ("FDD") in addition to its current procedures which include PGW's distribution crews measuring and reporting ground frost on a daily basis. By calculating FDD, there is a possibility that this enhanced survey would start sooner than would be required by frost conditions that are field reported. These surveys are conducted every 2 weeks using mobile optical methane detector technology as soon as there is a measurable amount of frost reported for a period of five days. This survey continues until seven days after the last report of frost.

C. Testing Instruments

As indicated above, PGW has been utilizing flame ionization gas detection units since the early 1970's when the technology was first introduced. In addition, a new generation of mobile gas detection technology was introduced in late 1998 called Optical Methane Detection or OMD. At the time the technology was introduced in the marketplace, PGW pursued the acquisition of OMD devices to replace its flame ionization units. In the spring of that year, PGW purchased two OMD units. Several more OMD units were purchased in the early 2000's. These units eventually replaced all of the flame ionization units, the OMD units are now utilized all year long.

Currently, PGW provides the most advanced instruments for leak detection as follows such as:

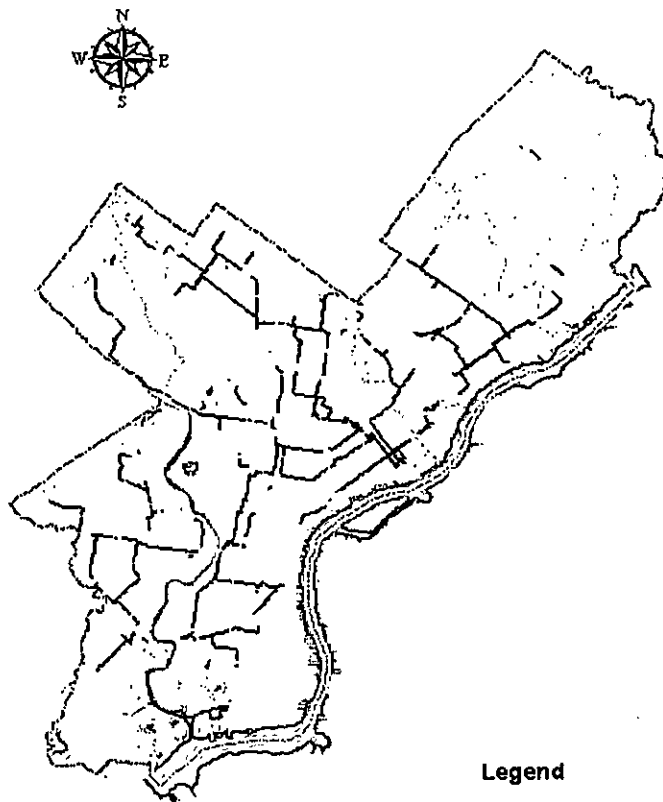
- a. Parts per Million (PPM) leak detectors – parts per million gas detection instruments used by every PGW first responder employee.
- b. Optical Methane Detection (OMD) mobile units – vehicles mounted units which detect trace amounts of gas while driven through the city. Used year round and covering every city street.

D. Enhanced Frost Patrol Protocols

Consistent with the direction from the Commission, PGW submitted a Leak Detection Pilot Program ("Pilot Program") to the Commission. The Pilot Program was approved by an Opinion and Order entered on _____. As part of its Pilot Program, PGW proposed the following enhancements to both its Prudent Winter Patrol Survey as well as its General Winter Patrol Survey Protocols:

- 1) All Sizes High Pressure (10-35 psig) Cast Iron mains
 - All High Pressure (10-35 psig) Cast Iron mains in PGW's gas distribution system (~100 miles) will be mobile surveyed twice a year (or every 6 months). Currently, all high pressure (10-35 psig) mains are mobile surveyed once a year within the General Survey program.

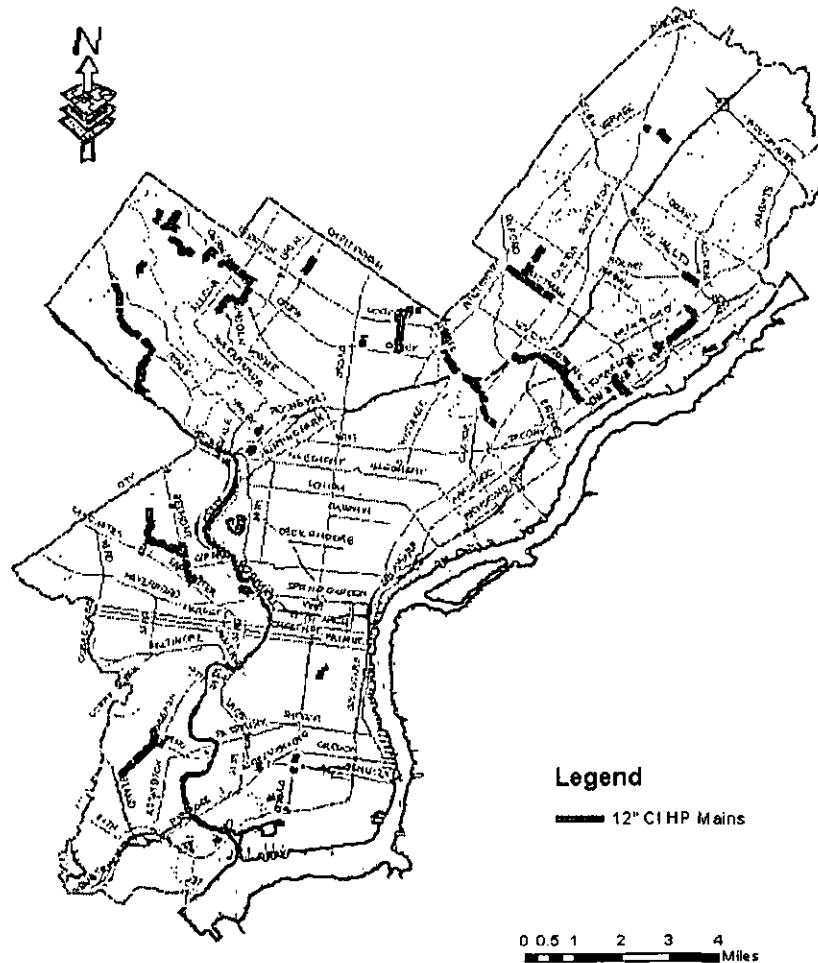
Philadelphia Gas Works Cast Iron Mains (10-35 psig)



2) 12" High Pressure (10-35 psig) Cast Iron

- All 12" HP cast iron mains are currently being mobile surveyed twice during the winter period (December to March). PGW proposes to enhance this survey program from two times a year to 6 times a year (or every two months year round).

12" Cast Iron Mains 10-35 PSIG



E. Conclusion

Overall, by PGW maintaining its aggressive inspection procedures, implementing these proposed enhancements and utilizing the best technology available, demonstrates PGW's continued commitment to an exemplary safety record. It is this commitment which has and will continue to assure that all Philadelphia customers served by PGW are provided service which is not only dependable and reliable, but which is safe and adequate as well.

Attachment B

Existing PGW Main Replacement Programs

Main Replacement Programs

The Distribution Department is responsible to administer PGW's main replacement programs. Since the 1980's, the overall goal at PGW was to replace 18 miles of cast iron main per year, which is approximately 1% of the existing cast iron pipe.

The goals of Main Replacement Program are:

- ❖ Prevent Incidents
- ❖ Eliminate Cast Iron Main Inventory in a Finite Number of Years
- ❖ Stabilize Break Rate
- ❖ Maintain Safety & Reliability
- ❖ Reduce Maintenance Costs
- ❖ Reduce UAF

There are two main replacement programs that contribute to this 18-mile target, specifically:

Prudent Main Replacement- These are mains that the Engineering Department determines need to be replaced based on the Advantica Main Replacement Program (MRP). The MRP program is Geospatial Model that uses Main Characteristics and Leakage History to Prioritizes Main Replacement Projects by Calculating: "Condition" and "Risk". Condition is "What's the possibility that the main will leak, again" and Risk is "What's the possibility that the leaking gas will migrate into a premise and cause an incident"? PGW normally does 12 to 14 miles of prudent main replacement per year.

The MRP ranks the mains that need to be replaced on a project-by-project basis based on a risk assessment of all the mains based on a number of factors:

- ❖ Main Breakage History
- ❖ Leak History
- ❖ Breakage Zones (Calculated)
- ❖ Main Pressure
- ❖ Main Material
- ❖ Main Size
- ❖ Main Age
- ❖ Gas Leakage Migration Data
- ❖ Depth of Main
- ❖ Type of Paving (Continuous vs. Lawns)
- ❖ Public Buildings- Population Density

With the Advantica program, PGW is able to prioritize the top 1 00 to 200 blocks replaced each year, while still having reasonably sized projects (so that PGW is not doing a lot of small, disjointed projects). In doing this, PGW combines smaller projects, even if some of the projects are not at the top of their priority list. PGW also takes into consideration the main's proximity

to schools, hospitals, greenways, etc. into the project prioritization process. The Advantica MRP database is updated with information that is extracted by a script from the system maps and with data from the Underground Facilities Database (UFD) on an annual basis. Both main break repairs and outstanding leaks are contained in the UFD.

Enforced Main Replacement- These main replacements are driven by work projects done by PennDOT, the water department, and other utility projects. Generally, four to six miles of main replacement is done each year under this category. PGW will usually replace all the pipe in a construction area due to the increased potential for leaks occurring as a result of the pipe being undermined during the construction process.

On February 14, 2012, Act 11 was signed into law, providing Pennsylvania utility companies with a supplemental recovery mechanism (a Distribution System Improvement Charge, "DSIC") for costs related to incremental/ accelerated distribution system repair, improvement and replacement. Act 11 permits gas utilities to recover 5% of their non-gas revenues via the recovery mechanism (which for PGW will be approximately \$22 million). In order to establish such a recovery mechanism, PGW submitted a Long-Term Infrastructure Improvement Plan ("LTIIIP") to the PaPUC for review and approval. Accordingly, PGW submitted its LTIIIP in December 2012.

The LTIIIP is a five year plan (i.e. FY 2013- FY 2017) for accelerated main, service lines and meter set replacement over and above PGW's base line cast iron main replacement program of 18 miles of small diameter cast iron replacement. The LTIIIP proposes to accelerate the replacement cycle for PGW's large diameter cast iron pipe (i.e. 12 inch and smaller diameter high pressure main and 30 inch diameter high pressure main) by over 60 years, with full replacement by 2023. Additionally, the much more extensive smaller diameter pipe (i.e. 8 inch and smaller low/ intermediate pressure main) replacement program is proposed to be accelerated by 17 years.

The LTIIIP which PGW submitted included several key elements.

1. The current baseline program of replacing 18 miles per year of small diameter, low/intermediate pressure cast iron main will increase by an additional 3 miles per year.
2. The replacement of larger diameter, high pressure cast iron mains that have been identified as potential risks will begin in FY 2013:
 - a) 30 inch cast iron mains that has been identified as being in poor condition as defined by PHMSA, and
 - b) 12 inch cast iron mains, similar to those that have been involved in two separate incidents in PGW's system (i.e. "Torresdale" and "Longshore"). A 12 inch cast iron main was also involved in the incident within UGI's service territory.

CERTIFICATE OF SERVICE

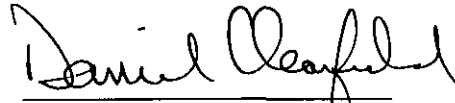
I hereby certify that I have this day served a true copy of PGW's Leak Detection Pilot Program upon the participant listed below in accordance with the requirements of § 1.54 (relating to service by a participant).

VIA EMAIL AND HAND DELIVERY

Paul Metro
Gas Safety Division
Bureau of Investigation & Enforcement
PA Public Utility Commission
Commonwealth Keystone Building
400 North Street, 2nd Floor
Harrisburg, PA 17120
pmetro@pa.gov

Johnnie Simms, Esq.
Michael Swindler, Esq.
Bureau of Investigation & Enforcement
PA Public Utility Commission
Commonwealth Keystone Building
400 North Street, 2nd Floor
Harrisburg, PA 17120
josimms@pa.gov
mwindler@pa.gov

Date: September 19, 2013


Daniel Clearfield, Esquire

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