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January 18, 2013

Via Electronic Filing

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

Re: Petition of Philadelphia Gas Works for Approval of Distribution System Improvement Charge, Docket No. P-2012-2337737

Dear Secretary Chiavetta:

Enclosed for electronic filing please find the Petition of Philadelphia Gas Works ("PGW") for Approval of Distribution System Improvement Charge ("DSIC") with regard to the above-referenced matter. Copies to be served in accordance with the attached Certificate of Service.

Sincerely,

A handwritten signature in blue ink that reads "Daniel Clearfield".

Daniel Clearfield

DC/lww
Enclosure

cc: Chairman Robert F. Powelson w/enc.
Vice Chairman John F. Coleman w/enc.
Commissioner Wayne E. Gardner w/enc.
Commissioner James H. Cawley w/enc.
Commissioner Pamela Witmer w/enc.
Karen Moury, Director of Regulatory Operations w/enc.
Bohdan Pankiw, Law Bureau w/enc.
Paul Diskin, Director of Technical Utility Services w/enc.
Cert. of Service w/enc.

CERTIFICATE OF SERVICE

I hereby certify that I have this day served a true copy of PGW's Petition for Approval of Distribution Improvement Charge upon the participants listed below in accordance with the requirements of § 1.54 (relating to service by a participant).

VIA EMAIL AND FIRST CLASS MAIL

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Date: January 18, 2013



Daniel Clearfield, Esq.

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

PETITION OF PHILADELPHIA GAS :
WORKS FOR APPROVAL OF : Docket No. P-2012-2337737
DISTRIBUTION SYSTEM :
IMPROVEMENT CHARGE :

**PETITION OF PHILADELPHIA GAS WORKS
FOR APPROVAL OF
DISTRIBUTION SYSTEM IMPROVEMENT CHARGE**

Pursuant to Section 1353 of the Public Utility Code, 66 Pa. C.S. § 1353, and the Commission’s Final Implementation Order at Docket No. M-2012-2293611, Philadelphia Gas Works (“PGW” or “Company”) respectfully submits this Petition for Approval of its Distribution System Improvement Charge (“DSIC”) to become effective March 1, 2013, and requests approval of the tariff supplement that establishes the DSIC for PGW customers on less than statutory notice. In support of approval of the relief requested, PGW states as follows:

I. INTRODUCTION

The enactment of Act 11 of 2012 (“Act 11”) by the General Assembly gives Pennsylvania utilities the tools necessary to make significant additional improvements to aging infrastructure that provides vital service to the citizens of the Commonwealth. Act 11 represents a legislative response to a long-standing need to further encourage utility companies to repair, improve and replace older assets to ensure that customers continue to receive safe and reliable utility service.

For many years, PGW has been working diligently to meet the needs and demands of its natural gas customers in Philadelphia, while closely monitoring mains and service lines in an effort to continue to provide safe and reliable service. The Company has endeavored to study its distribution system and implemented infrastructure improvement programs to maintain a high

level of service on a system. In the last 15 years alone, PGW has removed or replaced some 250 miles of cast iron main and 150,000 steel service lines in an effort to improve safety and reliability for its customers. Currently, the Company has in place a baseline main replacement program that replaces 18 miles of pipe annually.

With the proposed DSIC tariff, the Company will be able to implement its Long Term Infrastructure Improvement Plan (“LTIIP”), which will enhance its ongoing efforts to make its natural gas distribution system safer and more reliable. If this Petition is approved, PGW expects that it will be able to replace some 25 miles of main a year. This will result in significant, incremental and tangible benefits for customers in the form of a safer, more reliable gas distribution system at a lower cost.

In order to recover the additional costs of the accelerated main replacement program, estimated at approximately \$22 million per year, the Company has followed the dictates of Act 11 and designed a DSIC that will fund important incremental infrastructure projects while protecting customers from major rate increases. This effort complies with the purpose and objectives of Act 11, is in the public interest and will help PGW maintain safe, adequate, efficient, reliable and reasonable service for its customers.

The Company respectfully requests that the Commission allow PGW to establish a DSIC and to implement the Company’s proposed tariff beginning with service rendered on or after March 1, 2013, permitting the DSIC tariff to go into effect subject to any necessary adjustments following any required investigation or hearing. As the DSIC is a fully reconcilable automatic adjustment charge, any final modifications determined to be necessary by the Commission can be made on a going-forward basis, subject to refund.

II. BACKGROUND

1. PGW is a City Natural Gas Distribution Operation providing service to more than 500,000 customers in the City and County of Philadelphia.

2. The names, addresses and telephone number of PGW's counsel are:

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3. On February 14, 2012, Pennsylvania Governor Thomas Corbett signed into law Act 11 of 2012, which amends the Public Utility Code to permit certain entities, including city natural gas distribution operations, such as PGW, to petition the Commission for approval of a DSIC to provide timely recovery of reasonable and prudent costs associated with the repair, improvement or replacement of eligible property to ensure and maintain adequate, efficient, safe, reliable and reasonable natural gas distribution service.

4. On April 5, 2012, the Commission convened a working group meeting with interested parties to solicit input into the Commission's implementation of Act 11 in advance of its issuance of a Tentative Implementation Order.

5. On May 11, 2012, the Commission issued its Tentative Implementation Order setting forth the Commission's model DSIC tariff and proposed procedures and guidelines for the implementation of Act 11.

6. Approximately 24 commenters submitted written input to the Commission in response to the recommendations in the Tentative Implementation Order. PGW participated in the working group meeting, and participated in the written comments of the Energy Association of Pennsylvania ("EAPA").

7. On August 2, 2012, the Commission issued its Final Implementation Order establishing recommended procedures and guidelines to carry out the ratemaking provisions of Act 11.

8. This Petition is filed in compliance with Act 11 and the Commission's Final Implementation Order.

III. PGW'S LONG TERM INFRASTRUCTURE IMPROVEMENT PLAN (LTIIP)

9. Act 11 requires that PGW submit a long term infrastructure improvement plan ("LTIIP") in order to be qualified to recover eligible improvement costs through a DSIC.¹

10. On December 3, 2012, PGW filed its LTIIP with the Commission at Docket No. P-2012-2337737 in accordance with the requirements of Act 11.² PGW's LTIIP is discussed in greater detail in the testimony of Mr. Douglas A. Moser.³

11. PGW's LTIIP provides a comprehensive explanation of the Company's commitment to accelerate the replacement of critical natural gas distribution infrastructure. As

¹ 66 Pa. C.S. § 1352.

² PGW's LTIIP is attached hereto as Exhibit A.

³ See, PGW St. 2, attached hereto as Exhibit B.

required by the Commission, the LTIIIP includes: (a) the types and age of eligible property; (b) a schedule of planned repairs and replacements; (c) location of eligible property; (d) a reasonable estimate of the quantity of property to be improved; (e) projected annual expenditures and measures to ensure the plan is cost-effective; (f) the manner in which replacement of aging infrastructure will be accelerated and how repair, improvement or replacement will maintain safe and reliable service; and (g) a workforce and management training plan designed to ensure that PGW will have access to a qualified workforce to perform work in a cost-effective, safe and reliable manner.⁴

12. As set forth in more detail in PGW's LTIIIP, the Company has developed a five-year plan to accelerate main replacement from the current 18 miles per year to approximately 25 miles annually.⁵ Just as important, the LTIIIP proposes to remove and replace two categories of main – PGW's 30-inch and 12-inch mains – over 10 years.⁶

13. PGW utilizes a number of analytical tools to prioritize improvements to its distribution system. The Company uses risk management analysis programs, benchmarking analyses/studies, a main replacement prioritization model and field observations to create plans for prudent investment in infrastructure improvements.

14. Based on analyses and studies conducted by the Company, PGW has formulated an accelerated replacement program that prioritizes 12-inch and smaller high-pressure mains and 30-inch high-pressure mains.⁷ If approved, PGW's LTIIIP will remove entirely the 12-inch and 30-inch cast iron main categories from PGW's system by 2023.

⁴ *Final Implementation Order* at 12.

⁵ PGW LTIIIP at 2 and 16.

⁶ PGW LTIIIP at 2, 5-6.

⁷ Hereafter, high-pressure mains will be referred to as "HP mains."

15. PGW will closely monitor its cast iron main inventory for opportunities to remove or abandon any high-pressure main that is between 12-inch and 30-inch (i.e., 16-inch, 20-inch and 24-inch HP main) and will take proper steps to remove any segments determined to be redundant or underutilized.

16. In addition, PGW intends to accelerate the replacement of 8-inch and smaller, low to intermediate pressure, cast iron main.⁸

17. The property that PGW proposes to replace is DSIC-eligible property as defined under Section 1351 of Act 11.⁹ The property proposed to be replaced consists of piping, couplings and valves, all of which fit under Act 11's definition of eligible property.¹⁰

18. PGW's LTIP is designed to accelerate the replacement rate of aging main in order to improve the safety and reliability of PGW's natural gas distribution system.

19. The Company estimates that implementation of the accelerated replacement program will cost approximately \$22 million per year over and above the amount it currently spends on its baseline main replacement program.

20. PGW has established a number of measures to ensure that its LTIP is implemented in a cost-effective manner, including: (a) funding the program on a pay-as-you-go basis via the DSIC; (b) using the program to reduce future breakage repair costs; and (c) utilizing a competitive bidding process for all relevant aspects of the program.

⁸ Hereafter, low-pressure mains will be referred to as "LP mains" and intermediate-pressure mains will be referred to as "IP mains."

⁹ 66 Pa. C.S. § 1351.

¹⁰ PGW also plans to replace the unprotected bare and unprotected coated steel services and meter sets associated with these cast iron mains, and the related eligible property includes gas services lines, fittings, risers, meter bars and meters with attached AMR devices.

21. The Company's proposed accelerated main replacement program is in the public interest, is cost-effective and will ensure and maintain adequate, efficient, safe, reliable and reasonable service.

22. PGW's plan to accelerate replacement of critical distribution infrastructure in an efficient and targeted manner for the benefit of its customers, as reflected in its LTIP, is contingent upon the ability of PGW to recover the costs of the program through its proposed DSIC.

IV. PGW'S DSIC TARIFF

23. Act 11 provides that PGW may petition the Commission, and the Commission may approve, the establishment of a distribution system improvement charge or DSIC to provide for the timely recovery of reasonable and prudent costs incurred to repair, improve or replace eligible property in order to ensure and maintain adequate, efficient, safe, reliable and reasonable service.¹¹

24. A petition for approval of a DSIC must include an initial tariff that sets forth: (a) a description of eligible property; (b) the effective date of the DSIC; (c) the computation of the DSIC; (d) the method by which the utility will provide quarterly updates to the DSIC; and (e) a description of the consumer protections mandated by Act 11.

25. In compliance with Act 11, PGW has prepared an initial DSIC tariff that complies with the model tariff adopted by the Commission in its Final Implementation Order and includes

¹¹ 66 Pa. C.S. § 1353(a).

all the mandatory elements set forth in the statute.¹² PGW's proposed DSIC tariff is discussed in greater detail in the testimony of Mr. Kenneth S. Dybalski.¹³

26. Under PGW's DSIC tariff, "eligible property" includes: piping, couplings, gas service lines, insulated and non-insulated fittings, valves, risers, meter bars, meters, unreimbursed costs related to highway relocation projects and other related capitalized costs.¹⁴

27. The effective date of PGW's DSIC is March 1, 2013, subject to Commission approval. PGW respectfully requests that the PUC approve PGW's DSIC tariff on less than statutory notice.¹⁵

28. The Company will seek recovery of approximately \$22 million annually through the DSIC surcharge for the first five (5) years of the accelerated main replacement program and plans to spend approximately \$22 million annually for this program.

29. The proposed annual recovery and spending amount of approximately \$22 million is based on PGW's initial estimate of the maximum amount of DSIC recovery permitted under Act 11 (no more than 5% of the amount billed to customers under the utility's applicable distribution rates).¹⁶

30. The amount billed to PGW customers for distribution service, as determined on an annualized basis, is \$517,032,000. Five percent (5%) of this annualized distribution revenue

¹² PGW's proposed initial DSIC tariff, Supplement No 58 to Gas Service Tariff Pa. P.U.C. No. 2, is attached hereto as Exhibit C.

¹³ See, PGW St. 1, attached hereto as Exhibit D.

¹⁴ 66 Pa. C.S. § 1351.

¹⁵ The Commission has this authority pursuant to 66 Pa. C. S. § 1308(a).

¹⁶ 66 Pa. C.S. § 1358.

is approximately \$25.85 million.¹⁷ Thus, PGW's proposed annual DSIC spending of \$22 million is within the 5% DSIC cap.

31. Under the tariff, PGW will calculate the DSIC surcharge using the formula $DSIC = (DSI + e) / PSV$, where DSI represents recoverable costs, "e" stands for the amount calculated under the annual reconciliation feature or Commission audit, and PSV is the projected sales volumes for distribution services for the year during which the charge will be collected ("non-gas" revenues).

32. PGW will bill its customers for the DSIC on a "bills rendered" basis, and the surcharge will be expressed as a volumetric charge per Ccf carried to five (5) decimal places and will be applied to total customer usage.

33. The DSIC will be applied equally to all customer classes as a volumetric charge and will be at or below the 5% cap established in Act 11 for each class. The volumetric charge will produce, over 12 months, the \$22 million that PGW plans to spend on its accelerated main replacement program.

34. Upon approval of its DSIC tariff, PGW will determine its DSIC revenues on an annualized basis to recover the \$22 million the Company expects to invest in eligible improvements over a 12-month period.

35. PGW proposes to set the DSIC to recover \$22 million in costs incurred as part of the accelerated replacement program on an annualized basis. Annualizing PGW's cost incurrence allows the Company to recoup over 12 months the \$22 million in eligible expense proposed in the LTIIP on a more uniform basis, and avoids rate volatility.

¹⁷ See, Exhibit KSD-1 attached to Mr. Dybalski's testimony.

36. PGW proposes to conduct a quarterly reconciliation of the DSIC to either charge or credit customers for the difference between projected and actual billed amounts. Then, PGW will adjust its going forward annualized charges to account for any changes in its construction budget, while complying with the 5% DSIC cap.

37. The initial DSIC, effective March 1, 2013, is calculated to recover \$22 million on an annualized basis. After this initial DSIC, the charge will be updated quarterly using the same quarterly adjustment schedule for the DSIC and the Gas Cost Rate (GCR).

38. Supporting data for each quarterly DSIC update will be filed with the Commission and served upon the Commission's Bureau of Investigation and Enforcement ("BIE"), the Office of Consumer Advocate ("OCA") and the Office of Small Business Advocate ("OSBA") at least one (1) day prior to the effective date of the update.

39. If approved, PGW's DSIC will be subject to annual reconciliations to adjust for under- or over-collection of amounts recovered to pay for DSIC-eligible projects compared to PGW's actually experienced expenditures for property placed in service. The annual reconciliation will be based on the 12-month period ending on August 31st of each year to coincide with PGW's fiscal year. The Company will compare revenues billed through the DSIC surcharge for the reconciliation period against the Company's eligible costs for the same timeframe. Any difference between revenues and costs will be recouped or refunded over a one-year period commencing on December 1st of that year.

40. PGW's proposed DSIC tariff sets forth a number of consumer protections as contemplated by Act 11, including: (a) a reset of the DSIC to zero when new Commission-approved base rates go into effect for PGW; (b) customer notifications of changes to the DSIC in the first bill customers receive following any adjustment to the charge; (c) requirement of a bill

insert upon the submission to the Commission of the proposed DSIC and the initial DSIC tariff; and (d) a subsequent notice to customers when the Commission issues its Final Order on the DSIC filing.

41. PGW has prepared bill insert notices for customers to advise them of this filing. In addition, the Company will notify customers of the Commission's final decision in this matter and any changes the Company makes to the DSIC as a result of quarterly adjustments. The specific language of the bill messages will be reviewed by PGW with the Commission and the Office of Consumer Advocate before the message is included in customers' bills.

42. PGW's proposed DSIC tariff complies with Act 11 and the Commission's Final Implementation Order in all significant respects, is in the public interest and will help PGW ensure the maintenance of adequate, efficient, safe, reliable and reasonable service. As such, PGW's DSIC tariff should be approved by the Commission.

V. PGW'S BASE RATE CASE CERTIFICATION

43. Act 11 requires a certification by eligible utilities that a base rate case has been filed within five (5) years prior to the filing of the DSIC Petition.¹⁸

44. PGW hereby certifies that PGW filed its last base rate case under Section 1308 of the Public Utility Code in 2009 at Docket No. R-2009-2139884.

VI. EXPEDITED APPROVAL

45. PGW is proposing that the Commission approve PGW's DSIC in an expedited manner so that the charge becomes effective on March 1, 2013. If the Commission determines to investigate PGW's DSIC tariff, PGW respectfully requests that the Commission permit the tariff to be placed into effect, subject to investigation and/or hearing (if necessary). As the DSIC is a

¹⁸ 66 Pa. C.S. § 1353(b)(4).

fully reconcilable automatic adjustment charge, any modifications by the PUC can be made on a going forward basis, subject to refund.

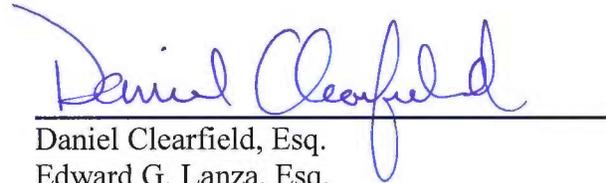
46. In addition, pursuant to the authority set forth in the Public Utility Code¹⁹ PGW respectfully requests that the Commission allow the DSIC to become effective on March 1, 2013, prior to the expiration of the 60-day period following the filing of this Petition.

VII. CONCLUSION

WHEREFORE, PGW respectfully requests that the Commission:

- a) Approve PGW's DSIC, including the DSIC tariff supplement, as just and reasonable and in the public interest; and
- b) Take any other action deemed to be in the public interest.

Respectfully submitted,



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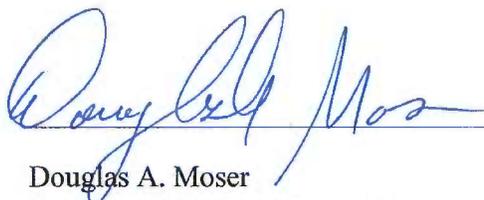
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January 18, 2013

¹⁹ 66 Pa C. S. § 1308 (a).

VERIFICATION

I, Douglas A. Moser, hereby state that: (1) I am the Executive Vice President and Acting Chief Operating Officer for Philadelphia Gas Works; (2) the facts above set forth in the foregoing document are true and correct (or are true and correct to the best of my knowledge, information and belief); and (3) I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa. C.S. § 4904 (relating to unsworn falsification to authorities).

A handwritten signature in blue ink, appearing to read "Douglas A. Moser", written over a horizontal line.

Douglas A. Moser
Executive Vice President and
Acting Chief Operating Office
Philadelphia Gas Works

Dated: January 18, 2013

VERIFICATION

I, Kenneth S. Dybalski, hereby state that: (1) I am the Director – Gas Planning & Rates for Philadelphia Gas Works; (2) the facts above set forth in the foregoing document are true and correct (or are true and correct to the best of my knowledge, information and belief); and (3) I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa. C.S. § 4904 (relating to unsworn falsification to authorities).



Kenneth S. Dybalski
Director – Gas Planning & Rates
Philadelphia Gas Works

Dated: January 18, 2013

Exhibit A

PHILADELPHIA GAS WORKS
LONG TERM INFRASTRUCTURE IMPROVEMENT PLAN

I. INTRODUCTION

On February 14, 2012, Act 11¹ was signed into law, thereby providing Pennsylvania natural gas utility companies with a recovery mechanism (i.e. a Distribution System Improvement Charge (“DSIC”)) for the costs related to distribution system repair, improvement and replacement. In order for a natural gas utility company to implement a DSIC, it must submit a Long-Term Infrastructure Improvement Plan (“LTIIIP” or “Plan”) and petition the Pennsylvania Public Utility Commission (“Commission”) for review and approval of a proposed DSIC. Although Act 11 does not permit the submission of DSIC petitions before January 2, 2013, the Commission has encouraged the submission of LTIIIPs before 2013. Accordingly, PGW is submitting the following LTIIIP.

PGW has made substantial strides in its cast iron main and steel service² replacement programs over the last 15 years by replacing and/or removing approximately 250 miles of cast iron main and 150,000 steel services³ with plastic and protected coated steel. The Company’s primary objective for its LTIIIP will continue to be improvement of safety and reliability of its infrastructure through the reduction of its cast iron main inventory and, after all cast iron main is removed from service, the removal of the Company’s unprotected coated steel and ductile iron main.⁴

¹ Act 11 of 2012 which amends Chapters 3, 13 and 33 of the Pennsylvania Public Utility Code.

² Services are also referred to as service lines”.

³ Based on 2011 and 1996 Annual DOT Gas Distribution System Reports.

⁴ PGW prioritizes main replacement this way because the risk of a future incident on unprotected coated steel and ductile iron mains is inherently low compared to cast iron mains. Also, the risk of a future incident is low due to low operating pressures, the inherently slow development of leaks on unprotected coated steel and ductile iron mains and PGW’s leak survey procedures. Similarly, PGW’s risk of a future incident with its unprotected bare

In formulating its proposed accelerated replacement program for the 2013-2017 time period, PGW was informed both by its traditional risk management analysis programs⁵ as well as experience from recent incidents at PGW and other natural gas distribution companies (“NGDCs”). PGW’s goal was to identify categories of cast iron main that would be the most prudent to replace based on an overall evaluation of all serviceability⁶ factors. That analysis produced the following recommended accelerated replacement program:

- 1) 12 inch and smaller high pressure main (“HP” or “10-35 psig”)
- 2) 30 inch high pressure main (“HP” or “10-35 psig”)
- 3) 8 inch and smaller low to intermediate pressure main (“LP/IP” or “4.5 inches WC to 5 psig”)

PGW’s proposed approach under this LTIP will give greater priority to the removal of 12 inch and smaller HP mains (due to recent incidents with 12 inch main on PGW’s and UGI’s distribution systems) and 30 inch HP mains (due to PGW’s recent discovery of localized corrosion on a section of 30 inch HP main), thereby removing these entire categories of main from PGW’s system by 2023. It also accelerates the removal of 8 inch and smaller diameter LP/IP cast iron main. Currently, PGW is removing cast iron main from inventory at a rate of 18 miles per year for all sizes. If PGW’s proposed LTIP is approved, PGW will remove cast iron main from inventory at a rate of approximately 25 miles per year.

PGW believes that the costs of these proposed accelerated replacements are fully recoverable through the DSIC mechanism that it intends to propose in 2013. In order to assure that PGW’s current financial situation is not adversely impacted, PGW will need to scale back

and coated steel services is also low for the aforementioned reasons. Additionally, the risk profiles for plastic and protected coated steel mains and services do not indicate the need for replacement.

⁵ As discussed later, these include PGW’s Distribution Integrity Management Program (“DIMP”), benchmarking analyses/studies along with the Company’s main replacement prioritization model.

⁶ i.e., fit for service.

the accelerated replacement proposed in this LTIIIP if the PUC declines to permit such full recovery through the DSIC.

The passage of Act 11 has provided a significant opportunity to accelerate the improvement of the safety and reliability of PGW's gas distribution system in the most cost effective manner and without creating financial challenges for the Company. Through this plan, PGW hopes to embrace this opportunity and believes that it has created a replacement plan that accelerates replacement in the most efficient and targeted manner possible. This, in turn, will provide benefits to PGW, its customers and Philadelphia in general.

II. LONG TERM INFRASTRUCTURE IMPROVEMENT PLAN

Act 11 and the Commission's August 2012 Implementation Order set forth the following elements to be included in a LTIIIP:

- A.) Identification of the types and age of eligible property owned or operated by the utility for which the utility would seek recovery under this subchapter.
- B.) An initial schedule for the planned repair and replacement of eligible property.
- C.) A general description of the location of the eligible property.
- D.) A reasonable estimate of the quantity of eligible property to be improved.
- E.) Projected annual expenditures to implement the plan and measures taken to ensure that the plan is cost effective.
- F.) The manner in which the replacement of aging infrastructure will be accelerated and how the repair, improvement or replacement will ensure and maintain adequate, efficient, safe, reliable and reasonable service.⁷
- G.) A workforce management and training plan designed to ensure that the utility will have access to a qualified workforce to perform work in a cost-effective, safe and reliable manner.⁸

The Commission's August 2012 Implementation Order also sets forth that: the appropriate LTIIIP time frame is five to ten years; the LTIIIP should coincide with longer term plans which address specific goals, including cast iron replacement plans, bare steel replacement plans; and the Plan

⁷ 66 Pa.C.S. §1352(a) – elements A to F.

⁸ *Implementation of Act 11 of 2012* (Docket No. M-2012-2293611) August 2, 2012, p. 18.

should meet overall system replacement goals.⁹ Accordingly, PGW's LTIP is a five year plan which is focused on the specific goal of accelerated cast iron main replacement (PGW's distribution system does not contain any bare steel mains) and meets the Company's overall system replacement goals set forth in Section F below.

A.) Identification of the types and age of eligible property for which PGW is seeking recovery

Identification Tools and Considerations

PGW utilized several tools to formulate the PGW LTIP proposed here:

- PGW's Distribution Integrity Management Program ("DIMP").¹⁰
- The Advantica Benchmarking Analysis, Risk Analysis and Model, Replacement Analysis and Computerized Main Prioritization and Ranking Program issued on June 2, 2008.¹¹
- The Advantica Main Replacement Prioritization Model.¹²
- The GL Noble Denton (formerly d/b/a Advantica) 12-Inch 10-35 psig Cast Iron Mains Benchmarking Study issued on September 7, 2012.¹³
- Field Observations and System Performance Analysis.

PGW's DIMP includes a demonstration that PGW understands its distribution system, identifies the threats to its distribution system, evaluates these threats, ranks the related risks and lists strategies to mitigate those risks. The Advantica Benchmarking Analysis, which was

⁹ *Id.* at 19.

¹⁰ See Appendix A for more information about DIMP.

¹¹ See Appendix B for the Executive Summary from the June 2, 2008 analysis. Additionally, see section F for further discussion.

¹² See Appendix C for the excerpt from the June 2, 2008 Advantica Analysis which discusses the Main Replacement Prioritization Model. Additionally, see Section F for further discussion.

¹³ See Appendix D for the Executive Summary from the September 7, 2012 Advantica Study. Additionally, see section F for further discussion.

updated in 2008¹⁴, has enabled PGW to compare and validate its main replacement program with similarly-situated NGDCs. Additionally, the Advantica Main Replacement Prioritization Model, another tool that PGW has utilized for several years, enables PGW to identify the specific segments of pipe that should receive replacement priority. Finally, PGW utilized the results of the GL Noble Denton Benchmarking Study to provide the Company with replacement strategies for 12 inch high pressure mains.

PGW also considered other factors in order to identify infrastructure property for inclusion in the LTIP, such as the recent incidents involving 12 inch mains on the PGW and UGI systems, and PGW's recent discovery of localized corrosion on a section of 30 inch HP main (10-35 psig operating pressure) plus surrounding ground conditions that contribute to main corrosion. Additionally, the Company will continue to review all cast iron inventory for any high pressure mains that are between 12 inches and 30 inches (i.e., 16, 20 and 24 inches – all HP) and that are redundant or under-utilized. Accordingly, PGW has targeted several abandonment projects for pipe inventory in this range.

Based on the DIMP risk ranking, the Advantica and GL Noble Benchmarking studies, the 12 inch main incidents, recent field observations of its 30 inch HP main and the prudence of beginning an abandonment program for redundant or under-utilized HP main (i.e., the Abandonment Program), the Company's proposed accelerated replacement program during the 2013-2017 time period will replace the following cast iron main types (categorized by size and pressure):

- 1) 12 inch and smaller, high pressure ("HP" or "10-35 psig").
- 2) 30 inch, high pressure ("HP" or "10-35 psig").

¹⁴ A predecessor consultant prepared a similar benchmarking analysis in 2000 which was subsequently updated in 2002 and 2004.

- 3) 8 inch and smaller, low to intermediate pressure (“LP/IP” or “4.5 inches WC to 5 psig”).

All of the above property proposed to be replaced is characterized as piping, couplings and valves and are “DSIC eligible,” under Act 11.¹⁵ PGW also plans to replace the unprotected bare and unprotected coated steel services and meter sets associated with these cast iron mains, and the related eligible property includes gas services lines, fittings, valves, risers, meter bars and meters with attached AMR devices. Also included in the Plan are the costs related to abandoning two (2) regulator stations and 2,400 feet of 12 inch steel main¹⁶ and replacing them with 2,400 feet of 20 inch steel main. These facilities, too, are DSIC eligible pursuant to Act 11.

An important assumption in PGW’s proposed LTIP is that the annual cost of the accelerated main replacement program (which is \$22 million over and above the amount it currently spends for its 18 mile cast iron main replacement program), will be recovered through PGW’s DSIC tariff. PGW intends to file for and receive authority to include in its tariff a DSIC rider, in accordance with Act 11 and the Commission’s guidance. PGW believes that the entirety of its additional \$22 million in expenditures for accelerated main replacement is eligible for and should be recoverable in its DSIC. However, if for any reason the PUC determines to prohibit or limit DSIC recovery for these expenditures, PGW would be required to correspondingly reduce its accelerated main replacement plan.

¹⁵ 66 Pa.C.S.A. § 1351.

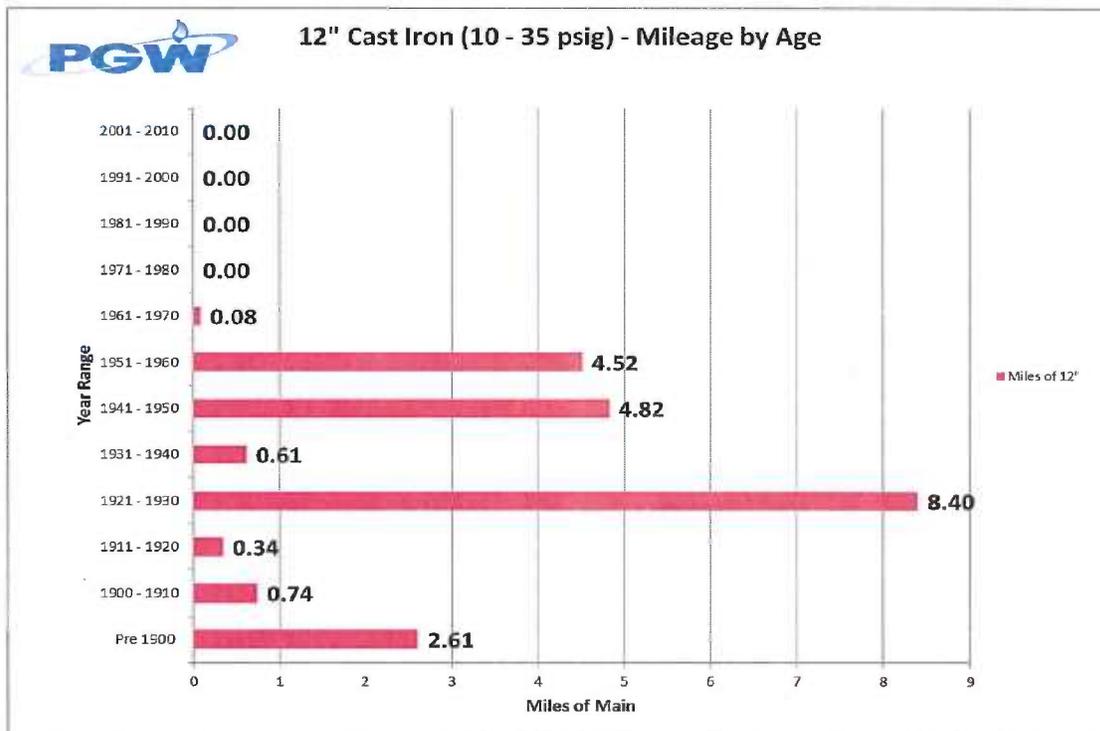
¹⁶ Parts for the regulators on PGW’s Somerton lateral are obsolete. In an effort to maintain public safety, load capacity studies were performed and concluded that this higher pressure line (150 psig) was no longer necessary. As a result, the Maximum Allowable Operating Pressure (“MAOP”) of the line will be down rated and the obsolete regulator stations will be abandoned. New main will also be installed to maintain reliable service at a lower pressure. The cost to abandon these facilities and install new main is a more cost effective approach than the alternative of replacing, hydrostatically testing, maintaining and operating new regulator stations. Additionally, the reduced operating pressure reduces risk.

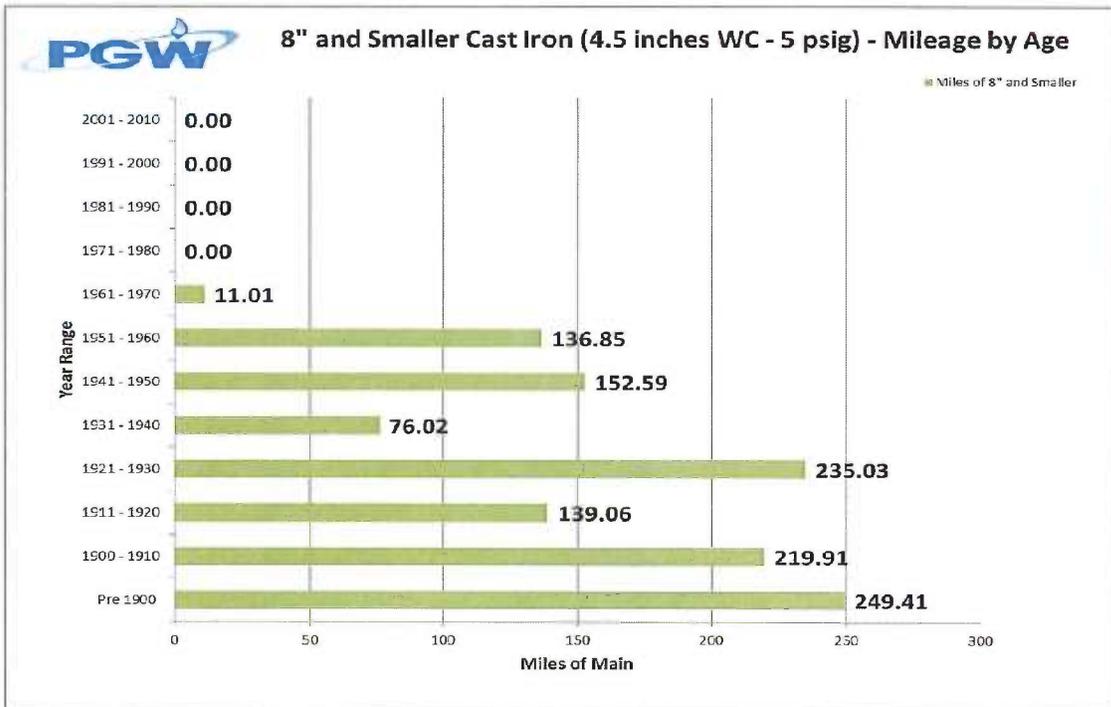
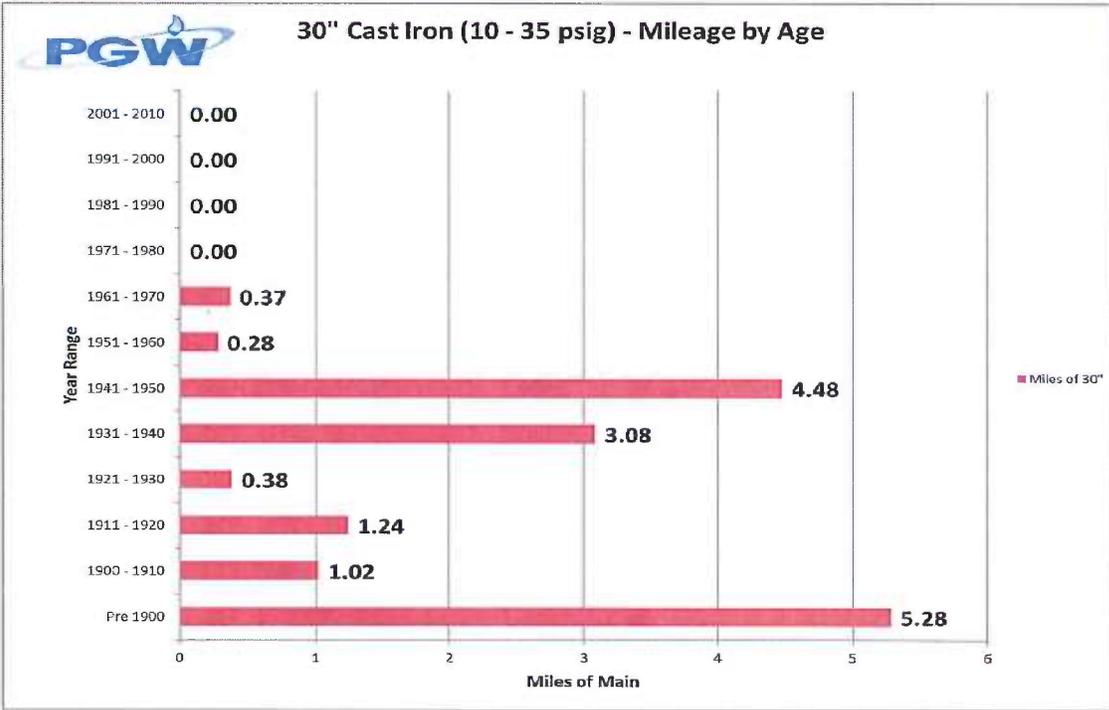
Age Range for Mains Included in LTIP

PGW’s distribution system contains approximately 3,000 miles of mains and 3,000 miles of services. The following shows the approximate material composition of PGW’s mains and services as of December 2011:

Mains	
Cast Iron	51%
Plastic & Protected Coated Steel	28%
Unprotected Coated Steel & Ductile Iron	21%
	<hr/> 100%
Services	
Plastic & Protected Coated Steel	72%
Bare Steel	23%
Unprotected Coated Steel	5%
	<hr/> 100%

The following charts show the total mileage by age range for the three cast iron main categories that PGW plans to replace during the five year period covered by this LTIP:





B.) An initial schedule for the planned repair and replacement of eligible property

The first phase of PGW’s LTIP,¹⁷ as described in the following chart of PGW’s proposed accelerated replacement program, beginning during the Company’s 2013 fiscal year (i.e. September 1, 2012 to August 31, 2013), will eliminate 343 miles of cast iron main with an estimated replacement cost of \$776 million. Concurrent with this accelerated program, PGW will continue to remove 18 miles of cast iron main as part of its baseline main replacement program and the combined replacement total will be 1,258 miles of cast iron main with an estimated replacement cost of \$2.43 billion. The following table shows the initial schedule for the complete replacement of this main:

PHASE 1 - ACCELERATED CAST IRON MAIN INVENTORY REDUCTION PROGRAMS BEGINNING IN 2013				
Size/Pressure	Total Inventory Reduction Mileage	Cost	Begins	Completed
12" & Smr HP	22	\$89,602,756	2013	2022
30" HP	16	\$95,560,352	2013	2023
8" & Smr LP/IP	305	\$590,630,499	2013	2063
	343	\$775,793,606		
Baseline 8" & Smr LP/IP Program During Accelerated Inventory Reduction Period*				
Baseline*	915	\$1,650,542,275	2013	2063
Acceleration	305	\$590,630,499	2013	2063
8" & Smr LP/IP	1,220	\$2,241,172,773	2013	2063
Baseline + Accelerated - Phase 1				
12" & Smr HP	22	\$89,602,756	2013	2022
30" HP	16	\$95,560,352	2013	2023
8" & Smr LP/IP	1,220	\$2,241,172,773	2013	2063
	1,258	\$2,426,335,881		

¹⁷ The first phase (i.e. “Phase 1”) of PGW’s Cast Iron Main Inventory Reduction Program begins during PGW’s FY 2013. A table is provided in Section F.1. which outlines the Reduction Program for Phases 2 through 5.

C.) A general description of the location of the eligible property

- 1) There are approximately 22 miles of 12 inch and smaller HP cast iron main (10 to 35 psig) composed of 752 individual pipe segments¹⁸ (segments vary in length from 1 foot to 2,000 feet) located throughout the city of Philadelphia.
- 2) There are approximately 16 miles of 30 inch HP cast iron main (10 to 35 psig) composed of 545 individual pipe segments (segments vary in length from 1 foot to 1,900 feet) located throughout the city of Philadelphia.
- 3) There are approximately 1,220 miles of 8 inch and smaller LP/IP cast iron main (4.5 inches WC to 5 psig) composed of 72,500 individual pipe segments (segments vary in length from 1 foot to 2,000 feet) located throughout the city of Philadelphia.

D.) A reasonable estimate of the quantity of eligible property to be improved

The information responsive to Section D is included in Section E.

E.) Projected annual expenditures to implement the plan and measures taken to ensure that the plan is cost effective

1. Projected annual expenditures to implement the plan

PGW's current base line main replacement program removes 18 miles of cast iron main annually and the Company will seek recovery, via the DSIC, for expenditures above the cost of the base line program on a pay as you go basis ("paygo") in its DSIC petition. More specifically, PGW does not plan to issue any long term debt to fund its accelerated main replacement program. Rather, it plans to seek recovery of \$22 million annually via a DSIC surcharge for the first five years of its program and plans to spend a corresponding \$22 million annually for its

¹⁸ A segment is a section of main that shares all of the following characteristics: material, size, pressure and age.

accelerated main replacement program. PGW plans to fund the program via the DSIC on a paygo basis because absent such recovery, PGW would be required to issue long term debt to fund the acceleration and, in turn, seek recovery of the costs through a base rate proceeding. Such a process would not only increase costs to consumers and negatively affect PGW's cash flow and internally generated funds, but would also adversely affect PGW's debt to equity ratio. In turn, this could negatively affect PGW's bond ratings.¹⁹

PGW is projecting \$22 million in annual spending because, in PGW's view, that is the amount permitted under the 5% consumer protection cap on DSIC revenue recovery. PGW is calculating the 5% cap based on distribution revenues (i.e. non-gas revenues) from its most recent base rate case.²⁰ At the projected \$22 million spending level, the following is an estimate of the quantity of eligible property to be improved and the projected annual expenditures to implement the accelerated replacement plan:

¹⁹ 52 Pa.Code § 69.2703.

²⁰ *PaPUC v. PGW* (Docket No. R-2009-2139884) Joint Petition for Settlement – May 12, 2010; Rates Effective – September 1, 2010.

**Long Term Infrastructure Improvement Program Annual Schedule, Quantities and Expenditures
Five Year Period - FY 2013 to FY 2017**

QUANTITIES	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
	(miles)	(miles)	(miles)	(miles)	(miles)
CURRENT BASELINE PROGRAM					
8" & Smaller LP/IP	18.00	18.00	18.00	18.00	18.00
ACCELERATED PROGRAM					
12" HP	1.84	2.16	2.04	2.04	2.50
30" HP	1.45	1.70	1.86	1.78	1.38
8" & Smaller LP/IP	2.97	3.04	2.97	2.98	3.01
Abandonment for Non-Use	2.08	0.00	0.00	0.00	0.00
ACCELERATED TOTALS	8.33	6.90	6.87	6.79	6.89
Yearly Totals	26.33	24.90	24.87	24.79	24.89
EXPENDITURES					
	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Regulator Station / Valve Work	\$2,500,000	\$1,270,000	\$500,000	\$500,000	\$500,000
12" HP	\$6,785,800	\$8,139,600	\$7,832,651	\$7,989,304	\$10,001,673
30" HP	\$7,782,600	\$9,311,580	\$10,399,838	\$10,174,862	\$8,059,790
8" & Smaller LP/IP (Additional)	\$3,131,600	\$3,278,820	\$3,267,510	\$3,335,833	\$3,438,537
Abandonment for Non-Use	\$1,800,000	\$0	\$0	\$0	\$0
Yearly Totals	\$22,000,000	\$22,000,000	\$22,000,000	\$22,000,000	\$22,000,000

2. Measures taken to ensure that the plan is cost effective

PGW is taking the following measures to ensure that the LTIIIP is cost effective:

- 1) As discussed above, PGW is proposing to fund the accelerated program²¹ on a paygo basis. This type of funding avoids the issuance of long term debt, thereby saving ratepayers the related interest expense plus the cash flow that must be included in rates necessary to cover certain debt service coverage ratios.
- 2) As discussed in more detail in section F below, PGW's Main Prioritization Model reduces future breakage repair costs.

²¹ i.e. the accelerated totals above the baseline 18 mile program.

3) As discussed in Section G below, PGW will utilize a competitive bidding process. Additionally, the Company is seeking new contractors for main installation in an effort to create a larger bidding pool and more competitive bid prices.

F.) The manner in which the replacement of aging infrastructure will be accelerated and how the repair, improvement or replacement will ensure and maintain adequate, efficient, safe, reliable and reasonable service

1. Acceleration

As set forth in more detail in the following table, PGW proposes to accelerate its replacement of its 8 inch and smaller cast iron main inventory (totaling 1,220 miles) by 17 years, and accelerating the replacement of all 12 inch and 30 inch high pressure cast iron main by more than 60 years.

PHASE 1 - ACCELERATED CAST IRON MAIN INVENTORY REDUCTION PROGRAMS BEGINNING IN 2013								
Size/ Pressure	Inventory Reduction Mileage	Inventory Reduction Accelerated By:	ACCELERATED Inventory Reduction Program			PRE-ACCELERATION Inventory Reduction Program		
			Cost	Begins	Ends	Cost	Begins	Ends
12" & Smlr HP*	22	67 Years	\$89M	2013	2022	\$354M	2085	2089
30" HP**	16	62 Years	\$95M	2013	2023	\$344M	2080	2085
8" & Smlr LP/IP*	1,220	17 Years	\$2.2B	2013	2063	\$2.7B	2013	2080
	<u>1,258</u>		<u>\$2.4B</u> ***			<u>\$3.4B</u> ***		

* As discussed later in this Section, PGW is prioritizing the inventory reduction of this main using its Main Replacement Prioritization model.
 ** PGW is currently prioritizing the inventory reduction of this main based upon corrosion and soil studies coupled with past operational
 *** The difference in cost between the accelerated and pre-acceleration program is due to an annual 2% inflation factor and different

Phase 1 of PGW's accelerated program beginning in 2013 accounts for a total of 1,258 miles of cast iron main replacement. PGW considers the replacement of the initial 1,258 miles to be its first priority based upon identifying threats, evaluating these threats and ranking the related

risks.²² After establishing this initial accelerated program, PGW will begin the next four phases of its accelerated replacement program in 2022 for the remaining 265 miles of cast iron main. The replacement periods for Phases 2 through 5 have been scheduled based upon the same threat identification, threat evaluation and risk ranking procedures. The following table shows the replacement periods beginning in 2022 and the number of years that replacement will be accelerated for each main category:

PHASES 2 THROUGH 5 ACCELERATED CAST IRON MAIN INVENTORY REDUCTION PROGRAMS BEGINNING IN 2022								
Size/Pressure	Inventory Reduction Mileage	Inventory Reduction Accelerated By:	ACCELERATED Inventory Reduction Program			PRE-ACCELERATION Inventory Reduction Program		
			Cost	Begins	Ends	Cost	Begins	Ends
PHASE 2:								
20" HP	46	33 Years	\$446M	2022	2068	\$1.2B	2089	2101
16" HP	15	69 Years	\$87M	2023	2036	\$372M	2101	2105
24" HP	1	63 Years	\$8M	2023	2025	\$27M	2088	2088
PHASE 3:								
12" IP	3	42 Years	\$27M	2063	2063	\$61M	2105	2105
16" IP	1	42 Years	\$11M	2063	2063	\$25M	2105	2105
10" / 12" LP	101	14 Years	\$1.4B	2065	2091	\$2.9B	2105	2105
16" LP	45	50 Years	\$681M	2068	2085	\$2.0B	2125	2135
PHASE 4:								
20" / 24" LP	38	48 Years	\$878M	2085	2097	\$127M	2135	2145
PHASE 5:								
30" & Lgr LP	15	49 Years	\$431M	2097	2100	\$1.1B	2145	2149
	265		<u>\$3.9B*</u>			<u>\$7.7B*</u>		

* The difference in cost between the accelerated and pre-acceleration program is due to an annual 2% inflation factor and different inventory reduction time periods.

²² As discussed in Section A above, PGW's Distribution Integrity Management Program identifies the threats to its distribution systems, evaluates these threats and ranks the related risks.

2. Ensuring and maintaining adequate, efficient, safe, reliable & reasonable service / ensuring that the plan is cost effective

a. PGW Studies and Evaluations Supporting Proposed LTIP

In order to ensure that PGW's replacement program will maintain adequate, efficient, safe, reliable and reasonable service and ensure that the Plan is cost effective, PGW engaged Advantica in 2008 and GL Noble Denton²³ in 2012 to prepare benchmarking analyses and studies comparing PGW's replacement programs to other similarly situated utilities. As part of the 2008 engagement, PGW also implemented Advantica's Main Replacement Prioritization ("MRP") model which helps PGW assess the risk factors of PGW's 8 inch and smaller cast iron distribution system and prioritizes which pipe segments should be replaced. PGW is now implementing the same MRP model for a more focused review of its 12 inch and smaller high pressure cast iron main replacement program as part of the 2012 GL Noble Denton engagement.

i. Benchmarking Analysis, Risk Analysis and Model, Replacement Analysis and Computerized Main Prioritization and Ranking Program²⁴

In 2008, PGW engaged Advantica to conduct a benchmarking study on the replacement of cast iron mains. This study benchmarked eight distribution utilities, including PGW, to determine cast iron main replacement strategies.²⁵ The seven other systems are all centered around a central inner city, and are thus considered to be the most-comparable benchmarks that could be used. These companies tended to operate large amounts of older, cast iron pipe and were predominantly located in the northeastern part of the U.S. The benchmarking study's most

²³ GL Noble Denton acquired Advantica in 2007 and Advantica eventually began doing business as "GL Noble Denton".

²⁴ See Appendix B for the Executive Summary from the June 2, 2008 analysis.

²⁵ The study also benchmarks a larger group of 27 companies (including PGW) for use as a broad comparison of industry standard practices.

notable comparison among the eight companies is the average percentage of cast iron main replaced each year.²⁶ Under this comparison, PGW's base line 18 mile replacement program was ranked as having the fifth highest replacement percentage of the eight companies. The study also provided PGW's ranking for a hypothetical replacement program of 24 miles which resulted in PGW's ranking moving up from the fifth highest to the second highest replacement percentage. This second highest ranking is important because it supports PGW's replacement program for the period of 2013 to 2017 which will replace approximately 25 miles of cast iron main annually (see Section D/E above).

ii. Advantica Main Replacement Prioritization Model²⁷

The Advantica Main Replacement Prioritization ("MRP") model developed for PGW is based on a risk model originally developed for the gas industry in the United Kingdom ("UK"). The initial UK model was developed in 1980 and then refined beginning in 1995. The refinement of this model was based on actual historical failure data from one million cast iron and ductile iron pipe segments covering 20 years of failure data and 10 years of gas leakage which migrated into buildings and the related incident data. After being fully developed, a UK gas regulator endorsed the refined risk model in 2000 and this model is now used by all UK network gas companies as well as gas companies worldwide (including several U.S. natural gas distribution companies²⁸).

²⁶ Based on a ten year average of cast iron main replacement for each of the eight companies.

²⁷ See Appendix C for the excerpt from the June 2, 2008 Advantica Analysis which discusses the Main Replacement Prioritization Model.

²⁸ The following U.S. natural gas distribution companies use the MRP Model: Philadelphia Gas Works (PA), Peoples Natural Gas (PA), Central Hudson Gas & Electric Corp. (NY), Consolidated Edison Company of New York (NY), Orange and Rockland Utilities, Inc. (NY), New Jersey Natural Gas Company (NJ), Public Service Electric & Gas Co (PSE&G) (NJ), City of Richmond (VA), Dominion Hope (WV), Michigan Consolidated Gas Co. (MichCon) (MI), Consumers Energy Company (MI), Nicor Gas (a division of AGL Resources) (IL) and MidAmerican Energy Company (IA).

PGW implemented Advantica's refined MRP model in 2008. As part of this implementation, PGW's detailed distribution system data (such as material, length, age, leak history, break history, etc.) for each pipe segment was input into the model. The model then analyzed the data, assessed the condition of each pipe segment and created a risk score for leakage / breakage per pipe segment. This scoring, in turn, is used by PGW to prioritize the replacement of pipe segments. Additionally, the MRP is a dynamic model and pipe segment data is updated annually so that the evolving condition of each pipe segment is factored into future risk scoring and replacement prioritization.

PGW's Advantica engagement also included evaluating a scenario in which PGW did not use a risk model for the prioritization of main replacement and compared it to various scenarios in which PGW did use a risk model with varying levels of cast iron main replacement.

Advantica was able to evaluate these scenarios based upon its own modeling of extensive historical failure data from UK gas systems.²⁹ Advantica's assessment, after evaluating the PGW scenarios within the context its historical data model, concluded that prioritizing replacement by MRP risk score is the most effective way for PGW to:

- reduce serious incidents;
- reduce breakage repairs; and
- reduce future breakage repair costs.

As a result of the foregoing, PGW's main replacement program ensures and maintains adequate, efficient, safe, reliable and reasonable service because using the MRP model to prioritize main replacement reduces serious incidents. The main replacement program also ensures cost effectiveness because using the MRP model reduces future breakage repair costs.

²⁹ As referenced above, the MRP model contains actual historical failure data from one million cast iron and ductile iron pipe segments covering 20 years of failure data and 10 years of gas in building and incident data.

iii. GL Noble Denton (formerly d/b/a Advantica) 12-Inch 10-35 psig
Cast Iron Mains Benchmarking Study³⁰

In 2012, PGW engaged GL Noble Denton (formerly Advantica) to conduct a benchmark study on the replacement of large diameter cast iron mains. The study benchmarks nine distribution utilities, including PGW, to determine replacement strategies for 12-inch high pressure cast iron mains. The eight other systems are all centered around a central inner city predominantly located in the northeastern part of the U.S. and are thus considered to be the most-comparable benchmarks that could be used. These companies tended to operate large amounts of older, cast iron pipe. As part of the benchmark study, PGW requested that GL Noble Denton perform a replacement analysis on PGW's 12-inch cast iron mains to determine the proper replacement amount for reducing risk to an acceptable level.

Due to the recent incidents involving large diameter cast iron mains in the U.S., and the overall reduction of risk for the distribution system exhibited by PGW's marked reduction in all reportable incidents, GL Noble Denton concludes that replacing 2 miles of 12 inch high pressure cast iron main per year provides the proper balance of risk reduction for a utility operating in a congested area. Based on this conclusion, PGW is proposing to implement a replacement program beginning in 2013 (set forth above in Section D/E) which will remove an average of 2 miles annually of larger sized high pressure mains until all of its 12 inch high pressure mains are completely replaced (i.e., by 2022).

³⁰ See Appendix D for the Executive Summary from the September 7, 2012 study.

b. Distribution Integrity Management Program

PGW's LTIIP ensures and maintains adequate, efficient, safe, reliable and reasonable service because it reduces risk consistent with the Company's Distribution Integrity Management Program ("DIMP"). PGW developed its DIMP in response to a recent Pipeline and Hazardous Materials Safety Administration (PHMSA) regulation which requires NGDCs to develop a written integrity management plan which, among other things:

- demonstrates an operator's understanding of its system;
- identifies the threats to its distribution system;
- evaluates the risks associated with its distribution pipeline;
- determines the relative importance of each threat;
- estimates and ranks the risks posed to its pipeline; and
- identifies the measures to address risks.

The development of a DIMP is a comprehensive process which requires an NGDC to make an assessment of its entire distribution system. It is among the most appropriate resources to use when determining the main categories to be replaced. Accordingly, PGW relied on its DIMP when it developed its current main replacement plan.

c. Field Observations

When a main is exposed, PHMSA's Office of Pipeline Safety regulation at 49 CFR § 192.459 requires NGDCs to observe whether localized corrosion appears on the exposed main. Recently, PGW exposed a section of its 30 inch HP main and discovered localized corrosion. Consequently, PGW studied two smaller segments of the exposed main and also discovered

ground conditions which contribute to main corrosion.³¹ As a result of the foregoing, PGW has included the replacement of 30 inch high pressure main in its LTIP.

d. Prudent Replacement

PGW has determined that it's also prudent to continue its distribution system evaluation to determine if there are any segments of redundant or under-utilized main that can be removed from service and still maintain adequate, efficient, safe, reliable & reasonable service. As a result PGW has targeted several large segments of 20" & 12" main that can be removed from service and abandoned. Because PGW's distribution system is dynamic due to changing load requirements and customer demands, PGW will closely monitor its cast iron main inventory for opportunities to remove/abandon any high pressure main that is between 12 inches and 30 inches (i.e. 16, 20 and 24 inches – all HP). If any main segment is determined to be redundant or under-utilized among the 16, 20 and 24 inch HP main inventories, PGW will take the proper steps to remove these segments from service.

G.) The workforce management and training plan designed to ensure that the utility will have access to a qualified workforce to perform work in a cost-effective, safe and reliable manner

1. Workforce Management

As discussed in earlier sections of this document, PGW's baseline main replacement program currently removes 18 miles of 8" and smaller cast iron main and associated steel services annually. The proposed LTIP is a continuation of PGW's current main replacement program, supplemented with accelerated 8" and smaller and 12" and larger cast iron main replacement. To ensure the proposed LTIP is successful, PGW currently has departmental

³¹ i.e. the soil pH and the moisture content of the soil.

structures and staffing in place for the prioritization, design, contracting, execution and cost control of main replacement projects.

Planning, Procurement and Construction

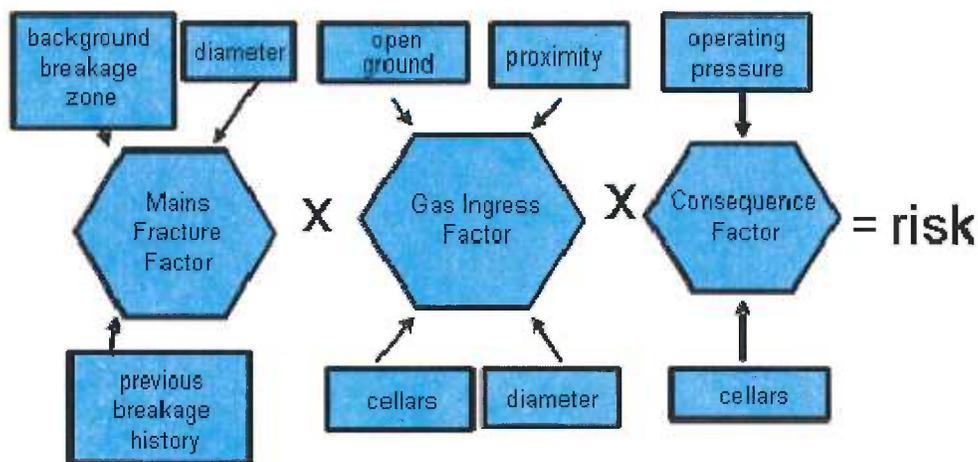


Planning

The Planning Section is responsible for designing, permitting, drafting and cost estimating the majority of PGW's main / service replacements and installations.

As stated above, PGW's current main replacement policy utilizes a Main Replacement Prioritization (MRP) program, developed by GL Noble Denton (formerly Advantica), which targets 8" and smaller cast iron mains for replacement based on parameters such as main size, break history, leak history, pipe age, service length (i.e. proximity to buildings) and gas leakage migration patterns into buildings. Each section of main in the system is evaluated and given a risk score based on a weighting scheme assigned to each parameter (i.e. risk, condition, gas

leakage migration patterns AKA front wall indicator, etc.). The sections of main are then ranked by their risk score to determine the priority of replacement.



MRP utilizes GIS³² as its platform; this enables PGW to incorporate information from a variety of additional sources into the risk-and-condition assessment. The highest ranked main sections are then grouped into projects which incorporate surrounding cast iron mains in the project. After the projects are grouped, construction documents, bid packages for contractor assistance and project cost estimates are developed and sent to PGW's Supply Chain Department for distribution to third party contractors.

Procurement

PGW's Supply Chain Department administers a standardized public works contracting bid procedure as mandated by state and local law for soliciting contractors to perform main installation and paving restoration as part of the main replacement program. This process includes the following:

³² GIS is a Geographic Information System which integrates hardware, software and data for capturing, managing, analyzing, and displaying all forms of geographically referenced information.

- Identification of Vendors;
- Issuance of the bid Request for Quotation (RFQ);
- Bid Evaluation and Vendor Selection;
- Internal Accounting Approvals / Board Approvals; and
- Awarding of Bid / Collection of Performance Bonding and Insurance Certificates.

Contractors for this specific type of work are qualified by PGW prior to being invited to bid.

The qualification includes review of background information such as financial statements, safety performance, minority participation performance and training records.

Construction

After the contract is awarded, the Construction Section of PGW's Distribution Department is responsible for the execution of the contract. This group schedules, monitors and evaluates overall program / project progress and associated costs.

Third party contractors and PGW skilled workers are utilized for all main replacement projects. Third party contractors excavate, install, pressure test with air and backfill new mains under the direct supervision of a qualified PGW construction inspector. The construction inspector is required to monitor and confirm that PGW's installation standards, safety performance standards and all contractual obligations are met.

Once the new main has been installed and tested, PGW's workforce mobilizes to energize the new main, replace existing steel services or reconnect existing plastic services and de-energize the existing main under the supervision of a PGW construction supervisor. Under certain circumstances, such as short unanticipated cutouts or small replacement projects, PGW crews are also utilized to install main. At the present time, only PGW employees are authorized

and trained to work on live gas (currently energized gas mains and services). Additionally, four PGW supervisors monitor the work performed by PGW's workforce for quality, timeliness of work, safety performance and customer satisfaction.

Measures Taken / Action Items

In addition to PGW's current workforce structure for main replacement, proactive measures have been taken to increase the probability of a successful accelerated main replacement program. These measures include, but are not limited to:

- A clause allowing contractors to perform live gas work under certain circumstances was included in the most recent collective bargaining agreement between the Philadelphia Gas Works and Gas Works Employees' Union of Philadelphia, Local 686.
- PGW contracted with a consultant for main replacement design work to prepare construction drawings and associated documents. The use of this design consultant will help PGW with the increased drawing/document preparation workload related to the accelerated main replacement program. Additional consultants may be added depending upon work load.
- PGW has been soliciting the services of additional outside contractors to perform main installation in an effort to keep contracts cost competitive.
- PGW is currently evaluating the services of an outside project management consulting firm to assist in the development and execution of construction processes and procedures for our accelerated main replacement program.

- PGW is currently developing a Main Replacement Prioritization (MRP) program for 12” and larger cast iron main replacement in addition to the present 8” and smaller MRP program.
- PGW is currently evaluating the need of adding additional vehicles and mobile equipment for its increased replacement plan.

2. Training Plan

PGW Training

PGW’s Distribution Department currently employs skilled workers to perform operation, maintenance and construction activities on PGW’s distribution system. These employees are trained and qualified to the standards set forth in US Department of Transportation, Office of Pipeline Safety Regulation Title 49 CFR 192 Subpart N, via PGW’s Natural Gas Pipeline System Operator Qualification Plan (effective April 26, 2001).

The purpose of the above mentioned Natural Gas Pipeline System Operator Qualification Plan is to ensure safe and efficient natural gas service by establishing objective criteria of required qualifications for all persons performing safety-sensitive operations and maintenance tasks on PGW’s gas piping system. This plan also ensures, through evaluation, that each person performing safety sensitive tasks on PGW’s pipeline system is: 1) able to perform these tasks; 2) able to recognize and respond appropriately to abnormal operating conditions; and 3) able to maintain necessary records to administer this plan.

PGW has a dedicated Training Section which provides classroom training as well as simulated and/or actual field training each time a PGW employee is promoted to a new position. Every employee is tested on their ability to perform every assigned task within an associated job

title. Employees are evaluated on their knowledge, skill and ability related to each task as well as their ability to react to abnormal operating conditions.

In addition to the classroom training for promotional job titles, PGW has instituted annual training classes for all field and management personnel that covers such tasks as: proper trench shoring techniques, leak investigation and migration practices, damage prevention methodologies, proper use of gas detection instrument, plastic pipe fusion qualifications, steel pipe welding qualifications and proper respirator use.

Contractor Training

In addition to the financial and technical screening performed by the Procurement Section, the Training Section tests and qualifies PGW's outside contractor workforce in plastic pipe fusion and steel welding practices. Additionally, now that the most recent Collective Bargaining Agreement permits outside contractors to work on live gas, the Training Section has established procedures to qualify contractors for live gas work.

III. CONCLUSION

PGW's LTIP satisfies the requirements set forth by 66 Pa.C.S.A. §1352 and the Commission's Final Implementation Order by:

- identifying the types and age of eligible property owned or operated by the utility for which the utility will seek recovery;
- providing an initial schedule for the planned repair and replacement of eligible property;
- providing a general description of the location of the eligible property;
- providing a reasonable estimate of the quantity of eligible property to be improved;

- providing projected annual expenditures to implement the plan and demonstrating that measures taken will ensure that the plan is cost effective;
- identifying the manner in which the replacement of aging infrastructure will be accelerated and demonstrating how the repair, improvement or replacement will ensure and maintain adequate, efficient, safe, reliable and reasonable service; and
- providing a workforce management and training plan designed to ensure that the utility will have access to a qualified workforce to perform work in a cost-effective, safe and reliable manner.

As a result of the foregoing, PGW's LTIP is adequate and sufficient to ensure and maintain adequate, efficient, safe, reliable and reasonable service. Accordingly, PGW respectfully requests that the Commission approve this Plan.

Distribution Integrity Management Program (“DIMP”)

The Pipeline and Hazardous Materials Safety Administration (PHMSA) published the final rule establishing integrity management requirements for gas distribution pipeline systems on December 4, 2009 (74 FR 63906). Operators were given until August 2, 2011 to write and implement their Distribution Integrity Management Program (“DIMP”).

The following is the complete text of the regulation which sets forth the DIMP elements:

49 C.F.R. § 192.1007 What are the required elements of an integrity management plan?

A written integrity management plan must contain procedures for developing and implementing the following elements:

(a) Knowledge. An operator must demonstrate an understanding of its gas distribution system developed from reasonably available information.

(1) Identify the characteristics of the pipeline's design and operations and the environmental factors that are necessary to assess the applicable threats and risks to its gas distribution pipeline.

(2) Consider the information gained from past design, operations, and maintenance.

(3) Identify additional information needed and provide a plan for gaining that information over time through normal activities conducted on the pipeline (for example, design, construction, operations or maintenance activities).

(4) Develop and implement a process by which the IM program will be reviewed periodically and refined and improved as needed.

(5) Provide for the capture and retention of data on any new pipeline installed. The data must include, at a minimum, the location where the new pipeline is installed and the material of which it is constructed.

(b) Identify threats. The operator must consider the following categories of threats to each gas distribution pipeline: corrosion, natural forces, excavation damage, other outside force damage, material or welds, equipment failure, incorrect operations, and other concerns that could threaten the integrity of its pipeline. An operator must consider reasonably available information to identify existing and potential threats. Sources of data may include, but are not limited to, incident and leak history, corrosion control records, continuing surveillance records, patrolling records, maintenance history, and excavation damage experience.

(c) Evaluate and rank risk. An operator must evaluate the risks associated with its distribution pipeline. In this evaluation, the operator must determine the relative importance of each threat and estimate and rank the risks posed to its pipeline. This evaluation must consider each applicable current and potential threat, the likelihood of failure associated with each threat, and the potential consequences of such a failure. An operator may subdivide its pipeline into regions with similar characteristics (e.g., contiguous areas within a distribution pipeline consisting of mains, services and other

appurtenances; areas with common materials or environmental factors), and for which similar actions likely would be effective in reducing risk.

(d) Identify and implement measures to address risks. Determine and implement measures designed to reduce the risks from failure of its gas distribution pipeline. These measures must include an effective leak management program (unless all leaks are repaired when found).

(e) Measure performance, monitor results, and evaluate effectiveness.

(1) Develop and monitor performance measures from an established baseline to evaluate the effectiveness of its IM program. An operator must consider the results of its performance monitoring in periodically re-evaluating the threats and risks. These performance measures must include the following:

(i) Number of hazardous leaks either eliminated or repaired as required by § 192.703(c) of this subchapter (or total number of leaks if all leaks are repaired when found), categorized by cause;

(ii) Number of excavation damages;

(iii) Number of excavation tickets (receipt of information by the underground facility operator from the notification center);

(iv) Total number of leaks either eliminated or repaired, categorized by cause;

(v) Number of hazardous leaks either eliminated or repaired as required by § 192.703(c) (or total number of leaks if all leaks are repaired when found), categorized by material; and

(vi) Any additional measures the operator determines are needed to evaluate the effectiveness of the operator's IM program in controlling each identified threat.

(f) Periodic Evaluation and Improvement. An operator must re-evaluate threats and risks on its entire pipeline and consider the relevance of threats in one location to other areas. Each operator must determine the appropriate period for conducting complete program evaluations based on the complexity of its system and changes in factors affecting the risk of failure. An operator must conduct a complete program re-evaluation at least every five years. The operator must consider the results of the performance monitoring in these evaluations.

(g) Report results. Report, on an annual basis, the four measures listed in paragraphs (e)(1)(i) through (e)(1)(iv) of this section, as part of the annual report required by § 191.11. An operator also must report the four measures to the state pipeline safety authority if a state exercises jurisdiction over the operator's pipeline.



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**Benchmarking Analysis, Risk Analysis
and Model, Replacement Analysis and
Computerized Main Prioritization
and Ranking Program**

Philadelphia Gas Works
Final Report
June 2, 2008

Enhancing Safety and Performance

Executive Summary

Background

Advantica have been engaged by Philadelphia Gas Works (PGW) to carry out a study into their current mains replacement policy for cast iron and their future mains replacement requirements. As part of this study, a detailed benchmarking of their current position has been carried out by comparing their distribution system with that of comparable gas utilities in the U.S., in particular those centered on a central inner city. PGW have also agreed to implement Advantica's mains replacement software offering Mains Replacement Prioritization (MRP), to assist them in building future replacement plans, thus this report uses the results from some initial runs of MRP to determine recommended replacement levels with associated risk, going forward.

Benchmarking Study

The benchmarking study for PGW was extensive and the full results are contained within the main body of the report, but the main points arising from this exercise are detailed within this summary. PGW was compared with two separate groups of utilities. The larger group of 27 companies (including PGW) was used as a broad comparison of "industry standard" practices, and covered the utilities primarily in the eastern half of the U.S. Seven of the companies in the broader benchmark group were pulled out for a closer comparison to PGW. These seven gas distribution companies were selected by PGW as having systems most similar to PGW's system. The seven systems are all centered around a central inner city, and are thus considered to be the most-comparable benchmark that could be used. These companies tended to operate reasonable amounts of older, cast iron pipe and were predominantly located in the northeastern part of the U.S.

The statistics presented within this benchmarking study report are primarily publicly available and have been sourced from the "U.S. Department of Transportation's Annual Report for Gas Distribution System," covering the 10-year period ending in 2006.

The main points to emerge from this study are as follows:

1. Within the larger group of utilities, PGW has a much higher than average proportion of cast iron pipe. This will increase the overall risk from the system as breaks from cast iron pipe are one of the most common causes of incidents.
2. Within the smaller group of utilities, PGW has an average proportion of cast iron pipe. This smaller group contains 49% of all the cast iron in operation in the US, but only 5% of the population of all materials, showing that this group is close to PGW in terms of its material composition.
3. Within the larger group of utilities, PGW has the lowest percentage of polyethylene pipes. Polyethylene is considered to have the lowest risk of serious incidents due to its extreme resistance to joint leakage, fracture and corrosion.
4. Within the smaller group, PGW has the highest percentage of cast iron, the lowest percentage of polyethylene, and the lowest percentage of bare steel.

5. PGW's distribution of pipe by diameter is comparable with the smaller group, but PGW has much less small diameter (less than 2-inch) pipe in comparison with the larger group, since the majority of their system is operated at low pressure (6"wc) and PGW eliminated small diameter CI during the late 80's early 90's as part of its main replacement program.
6. PGW has one of the highest proportions of pre-1940 pipe within the larger group, but an average proportion when compared within the smaller group.
7. PGW has an average percentage of PE services within both the larger and smaller benchmark group.
8. PGW has one of the shortest average service line lengths within the larger group and the shortest within the smaller group. This is an important factor in the risk arising from main breaks and to a lesser extent for joint leaks, as gas will have shorter distance to migrate into nearby property.
9. When compared with other utilities, there is marked difference between the classification of leaks within PGW and elsewhere, in particular the high number of leaks classified as due to "natural forces," compared to other companies. PGW attributes 90% of their leaks to this cause, compared with only 14% for the larger group and 22% for the smaller group. This may be a real difference, or more likely, a difference of interpretation of the classifications.
10. In terms of unaccounted-for gas, PGW ranks as having one of the highest figures within the largest group and the highest within the smaller group, but previous studies have suggested that there may be a high level of unreliability associated with these figures.
11. Trends in joint and break leaks are not available via the DOT statistics, but Advantica carried out a separate, confidential survey, to determine figures from six companies (five from the smaller benchmark group and one from the larger group). The 10-year trend in cast iron breaks and joint leaks for PGW shows a reasonably level trend for breaks, suggesting that the current level of cast iron replacement is sufficient to stabilize the break rate. There is, however, a slight upward trend for joint leaks, suggesting that the replacement level should perhaps need adjusting upwards to reverse this trend or keep it level. It must be noted that weather also plays an important factor in the number of breaks per year that a utility experiences.
12. A comparison of joint leaks as a percentage of total leaks, from this anonymous group, has shown that PGW's percentage is average.
13. A comparison of incident rates over the period 1986 to 2004 has shown that the PGW rate was significantly higher than the average for all U.S. gas companies over this period, an average of just under 25 incidents per 100,000 miles of mains and services per year compared to a national average of around 7 per 100,000 miles per year. However, the general trend for PGW has shown a reduction in incidents in recent years.
14. The main cause of incidents within PGW has been recorded as "outside force." This is the same pattern as seen within the U.S. as a whole.
15. The largest source of incidents appears to be mains. This is seen for both PGW and the U.S. as a whole.
16. The vast majority of incidents within PGW occur on cast iron pipes, on 4 to 6-inch mains, on older pipes, within the winter months. This pattern is similar to the national situation.

Replacement policy

As well as examining PGW's current position in terms of operating statistics, Advantica has also examined PGW's position in relation to replacement levels, in particular those of cast iron. The main points of this examination are listed below.

1. In terms of replacing its cast iron population over the 10 year period ending in 2006, PGW rank in the lowest quartile within the larger group, having replaced a total 156.3 miles or approximately 8.8% of its' main from the starting point of 1,768 of the CI system compared to an average of 13%. For the smaller group however, it matches the average reduction. The ten (10) year average for replacement is 15.6 miles, the five year average is 20.2 miles and the most recent replacement level equates to just more than 18 miles per year.
2. PGW's replacement of cast iron over the period 2001 to 2006 has been approximately twice as high as in the years 1998 to 2000.
3. If PGW were to increase its replacement level to 24 miles per year, it would rank second highest in the smaller benchmark group. If it were to reduce replacement to 12 miles per year, it would rank second lowest.
4. If PGW continued to replace at its recent rate of 18 miles per year, using a random approach, its year of final replacement would be 2096. This compares with 2063 for the company with the best rate of replacement (24 miles) and 2291 for the company with the worst rate of replacement (12 miles).
5. Following discussion with PGW staff, regarding replacement techniques and the constraints imposed by working in an urban area, Advantica have suggested the following for reducing the costs of repairs and replacement of mains:
 - Revisit longer term contracts
 - Schedule larger replacement areas/projects
 - Discuss paving requirements with the City
6. As part of the survey conducted by Advantica, participants were asked for suggestions for replacement techniques which they would recommend for reducing costs. The details of these are contained within the main body of the report. Advantica has also provided PGW with a flowchart aid to selecting construction techniques.
7. Finally, the survey collected details of repair and replacement costs for each of the participants. PGW has a relatively low cost per repair of \$1,660 per mains break repair, compared to an average of \$3,300. PGW has an average replacement cost of \$0.7 million per mile, comparing favorably to an overall average of \$1.1.

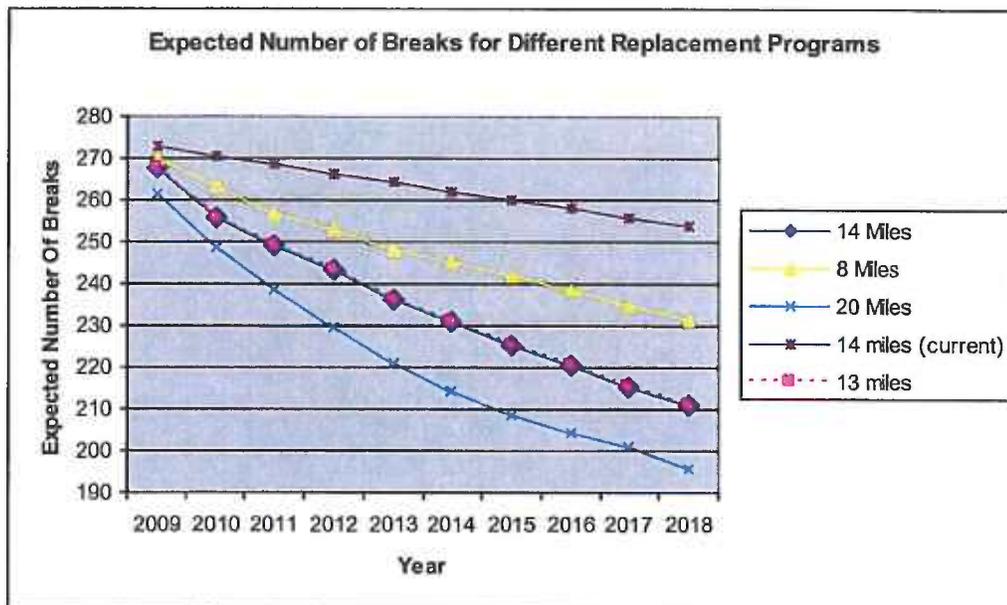
Alternative replacement scenarios using MRP

The previous two sections have examined the current status of PGW in terms of operating statistics and replacement policy. Advantica has also carried out some analysis to determine if the present policy can be improved by the application of MRP, Advantica's prioritization model. MRP has been populated with pipe details for PGW, namely pipe sizes, their geographical location, their associated leaks and information relating to service length. This has enabled

Advantica to generate a number of different replacement scenarios based upon different levels of risk-based replacement and their associated costs, to determine how effective they are at reducing breaks, avoiding breakage repair costs, and improving safety.

Replacement levels of 12 miles, 17 miles, 18 miles and 24 miles, using MRP, have been examined, together with 18 miles using PGW’s current methodology. The results of running these scenarios are presented in the following graph, in terms of a reduction in expected breaks over a 10-year period by applying different annual rates of replacement and methodologies.

It is important to note that PGW’s annual program is made up of prudent and enforced replacement. The prudent portion has historically been selected using PGW’s current prioritization tool. The enforced has to be carried out due to city, state, federal and other utility projects outside the control of PGW. Traditionally, the enforced has accounted for around 4 miles per year. The scenarios which are presented within this report, using MRP, have removed 4 miles from the total to simulate the actual situation, thus the 18 mile scenario is actually 14 miles of cast iron, the 24 mile is actually 20 miles and so on. The output from MRP has been amended to produce a graphical output for breaks per year rather than leaks, as PGW has traditionally measured its replacement program against the trend in breaks not leaks. The following graph shows the results of applying MRP to a number of different scenarios, based upon different lengths of replacement.



As expected, the more pipe is replaced, the greater the reduction in breaks per year. The average breakage rate over the 10 year period 1997 to 2006 within PGW has been 370. MRP predicted a starting level of 275 for 2008. It is important to note that the output from MRP predicts the number of breaks associated with specific pipes. The average level of breaks of 370 is based upon all breaks, whether they are assigned to pipes or not. When PGW’s historical data is examined

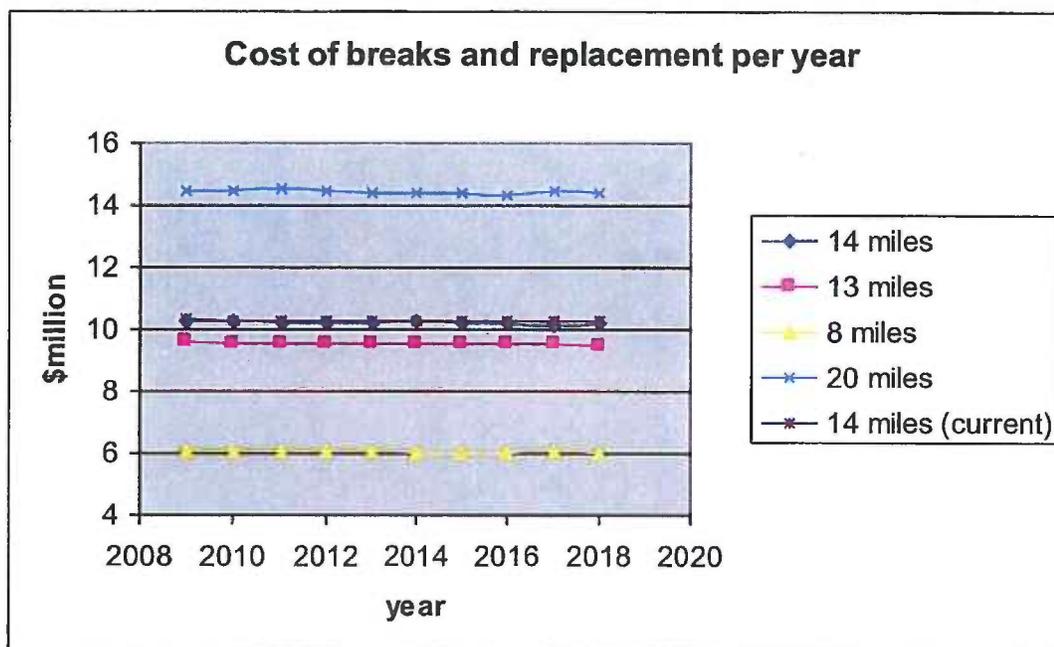
further to extract only those breaks associated with pipes, the average reduces to 254 – this is in comparison to a predicted average from MRP of 275.

The graph also shows that there is a distinct difference between 14 miles (18 miles total) using PGW's current policy versus 14 miles (18 miles total) using MRP. The level of predicted breaks for 13 or 14 miles is very similar, but the 14 mile scenario does reduce breaks slightly quicker than the 13 mile scenario. In terms of percentage reduction, the scenarios performances are summarized in the following table.

Scenario	Description	Breaks in year 0	Breaks in year 10	% reduction in length of cast iron	% reduction in breaks
A	18 miles of cast iron per year, random (14 miles prudent)	275	253	8%	8%
B	18 miles of cast iron per year (14 miles using MRP Risk)	275	209	8%	24%
C	17 miles of cast iron per year (13 miles using MRP risk)	275	211	7.5%	23%
D	12 miles of cast iron per year (8 miles using MRP Risk)	275	231	5%	16%
E	24 miles of cast iron per year (20 miles using MRP risk)	275	196	11%	29%

The previous table shows that the application of MRP is effective for all scenarios, in reducing cast iron breaks, and hence incidents; each one removing proportionally more breaks than the corresponding length replaced, and all of them more effective than the current policy. The table also shows that any move away from the 14 mile (18 mile total) program will reduce the effectiveness of reducing breaks and hence incidents.

The cost of replacement and repair has also been considered. An increase in replacement will increase replacement costs but reduce future breakage repair costs. The following graph summarizes the total cost of each scenario, in terms of replacement and breakage repair costs. The 14 mile (18 mile total) current and MRP scenarios have similar levels of costs, as the cost of replacement is the same in both cases, and is much greater than the cost of breakage repairs. However, as can be seen in the previous graph, the reduction in future breaks is much greater if MRP is used to prioritize the 14 miles.



Conclusions and Recommendations

The results of the analysis carried out by Advantica have shown that PGW operates a distribution system which is typical of one operating in a central inner city area, where the mains population is very well established and there are constraints on the amount of replacement possible because of the density of other services and property.

Because of this particular type of system, PGW has a higher than average level of leaks and incidents, older than average pipes, and a lower than average polyethylene population. It is therefore imperative that any replacement policy is as effective as possible at identifying the pipe segments that present the greatest likelihood of leaks and incidents, and replacing them as early as possible in the program.

The application of MRP to the population of pipes within PGW has shown that PGW could continue to operate a policy of 18 miles per year, of prudent and enforced, but significantly reduce the level of future breaks, simply by identifying a different population of those 18 miles. It has been assumed that 4 miles of the 18 is still outside the control of PGW as it is enforced replacement, but the remaining 14 miles could be identified using the MRP risk model. This would identify those cast iron mains with the highest probability of breaking and causing an incident. This program will have a similar cost to the current 18-mile policy, but is estimated to produce significant savings in terms of breaks avoided over the subsequent 10-year period. An 18-mile program, directed by MRP over the next 10 years reduces the cast iron population by around 8% but the estimated reduction in breaks over the same period is 24%.



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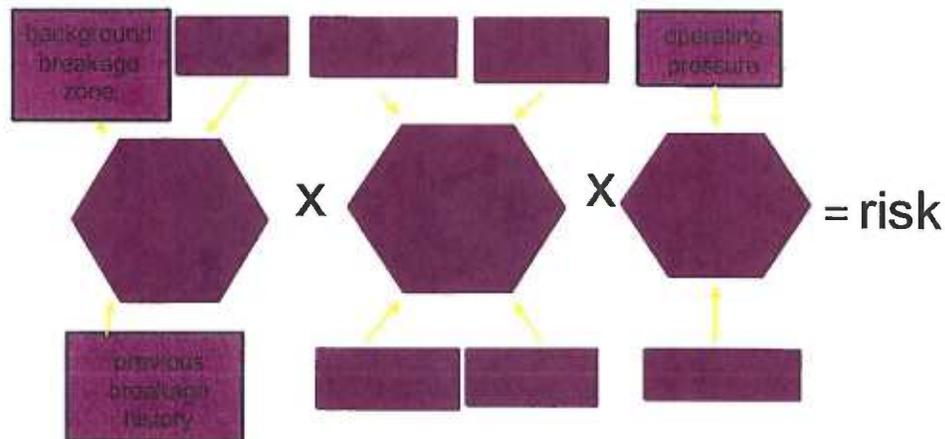
**Benchmarking Analysis, Risk Analysis
and Model, Replacement Analysis and
Computerized Main Prioritization
and Ranking Program**

Philadelphia Gas Works
Final Report
June 2, 2008

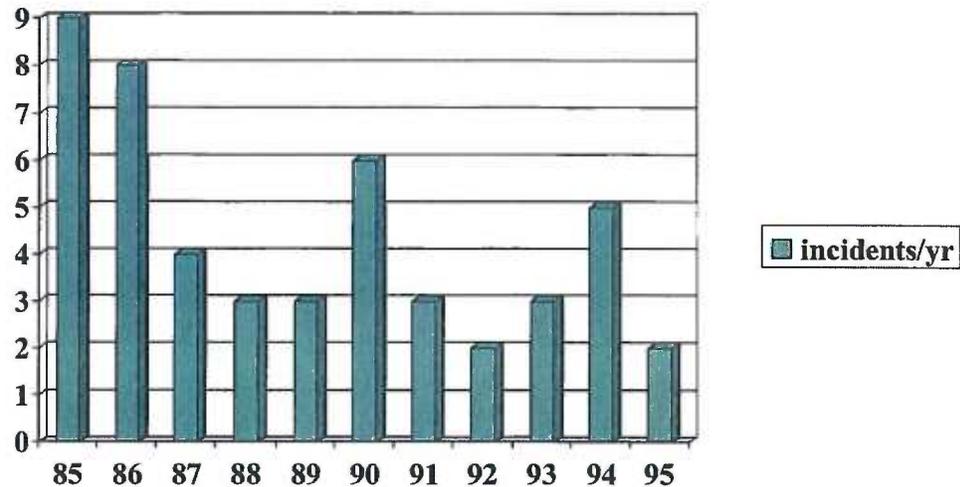
Enhancing Safety and Performance

Dynamic Risk Model

The dynamic risk model developed for PGW is based on the risk model developed for the UK gas industry. The original model, developed in the 1980s, was called the Points Scheme. It was based on modeling a three-stage process: gas leaking from a pipe segment, the gas migrating underground from the pipe into nearby property, and the gas subsequently building up to a flammable mixture and igniting, causing damage to the property and possible injury or fatality to any occupants. At each stage of the process, different elements were thought to act upon the likelihood of each stage occurring.



The Points Scheme was essentially a ranking program, and the Points Score for each pipe segment was used to compare one pipe against another in terms of its priority for replacement. The weightings within the model for each element were largely intuitive rather than based upon analysis of historical data. The model was used between 1985 and 1995 and recommended the annual replacement of approximately 1% of the cast iron population in use at the time, around 75,000 miles, at an approximate annual cost of \$240 million. The 1% was selected to reach a target of replacing all cast iron above a Points threshold of 1200 points by 1995. This was deemed to be an acceptable level to reduce incidents to a level of around three per year and keep it stable over the coming years. Although the Points model was based on ranks rather than an actual measure of risk, there was a steady decrease in explosion incidents over the period, suggesting that the model had been reasonably successful at targeting pipes presenting the greatest risk.



In 1995, the development of a refined model began, based on analysis of actual historical failure. It was based on data from one million cast and ductile iron pipe segments, covering 20 years of failure data and 10 years of gas in building and incident data. The model kept the three-stage process but the weightings within the model and the relationship between the individual elements were generated by regression analysis performed on the data. The result was the Risk Model, now incorporated into MRP (Mains Replacement Prioritization), and the output from the model was a risk score for each pipe segment in terms of incidents per length per year. This allowed, for the first time, the reduction in risk to be numerically linked to the length (and hence cost) of replacement, so that replacement plans could be presented to the UK gas regulators, Ofgem (The Office of Gas and Electricity Markets), and the HSE (Health and Safety Executive). The model was finalized in 1999 and presented to HSE, who then endorsed it, and it was implemented across the UK in 2000. In 2002, following an inquiry into a serious incident in 1999, the UK gas industry was subject to an enforcement notice from HSE, forcing them to replace all cast and ductile iron mains within 100 feet of property in the following 30 years. The Risk Model is used by all network gas companies in the UK to prioritize that replacement.

The model is now in use within other gas utilities around the world and has recently been implemented within PGW. In order to install a version which is aligned with PGW's distribution system, the models within MRP have to be calibrated. This involves calculating the overall level of failures with PGW, and using this information to scale the models accordingly. This is because the MRP base models are based on data from the UK, and each utility will have a failure rate that is less or greater than this rate depending on such factors as previous replacement policies, or geographical location (affecting weather conditions), all of which will affect the overall level of leakage repairs.

MRP contains two models: Condition and Risk. Risk models the likelihood of a leak leading to a serious incident, (mains break) as described above, whereas Condition measures the first stage of the process only, i.e. the likelihood of a leakage repair.

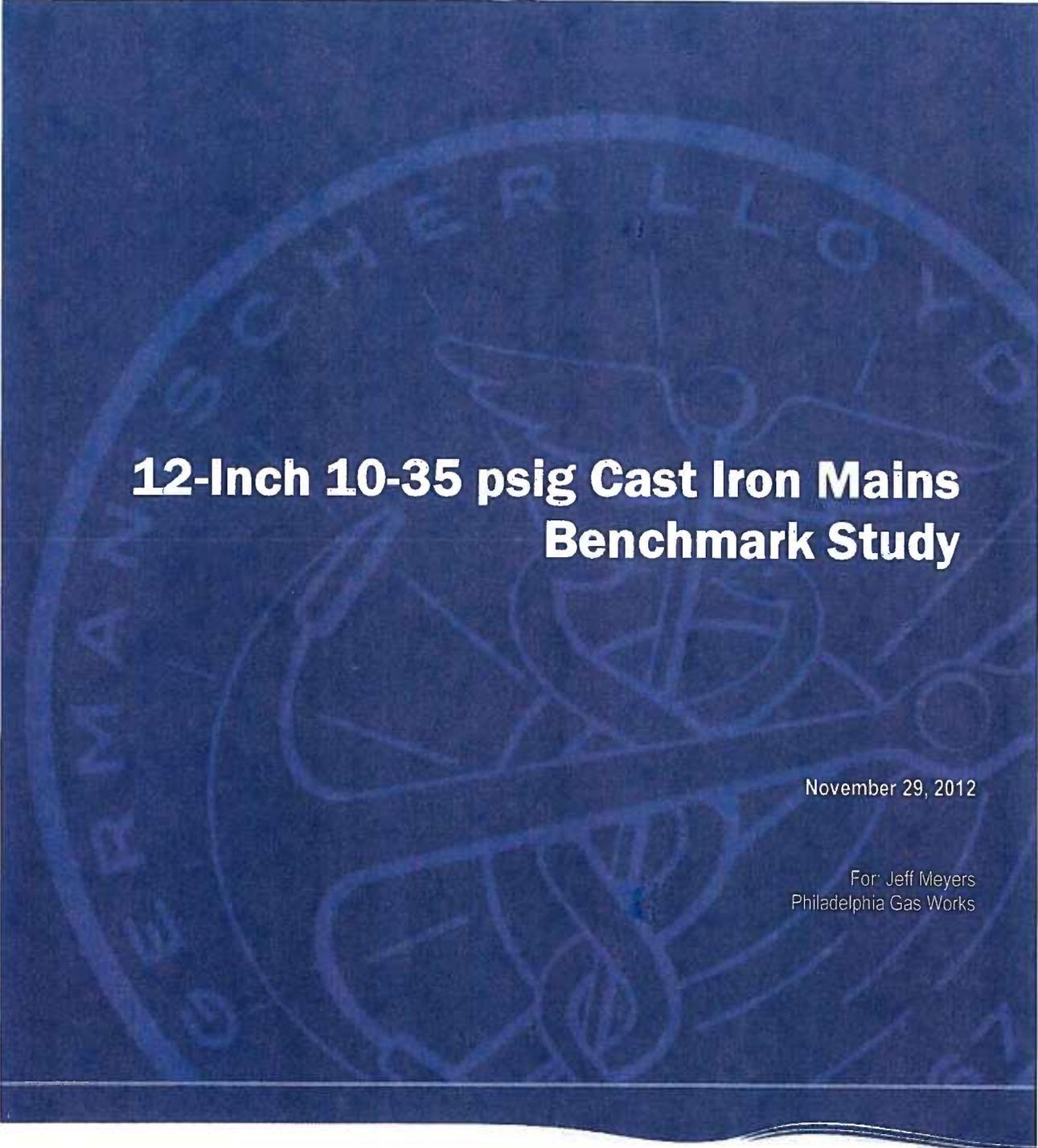
The Condition model requires data for each pipe segment on material, age, length, previous leaks, and Background Failure Zone, or BFZ. These are “hotspots” of failure activity and are generated by examining all pipes, their locations, and their associated leaks. Previous analysis has shown a very strong link between the likelihood of a pipe leaking and the leakage behavior of other pipes in its vicinity. This is especially important when trying to determine how a pipe will behave when it has not yet experienced any leakage repairs. This normally accounts for over 90% of the system; therefore, any policy that relies on prioritizing replacement based on previous leaks alone will only be able to assess around 10% of the system. The introduction of BFZs means that all pipes will have factors associated with them that will discriminate them from their neighbors in terms of Condition or risk score.

All data required to generate Condition scores was loaded into MRP for PGW (taken from the Underground Facilities System (UFS) or Detail Main Maps (DMM)), and BFZs and Condition Scores were calculated. The predominant material in PGW is cast iron, and the predominant failure mode is joint leaks. The following picture shows the distribution of Background Joint Zones (BJZs) for the PGW area as generated by MRP. Areas in red are high zones, areas in green are medium, and areas in blue are low. Pipes lying within a high BJZ are much more likely to experience a joint leak than identical pipes lying within a low BJZ. The same theory is applicable to Background Breakage Zones and Background Corrosion Zones.

MRP will also calculate Risk scores for each pipe. The data required all relate to the pipe and its environment and include the following:

- Proximity of the pipe to nearby property
- The presence of basements in nearby property
- The type of ground surface between the pipe and nearby property (i.e. paved or open)
- The diameter of the pipe
- Its operating pressure.

For the implementation within PGW, the proximity has been estimated by the use of service length. Most properties have been assumed to have basements, and paved ground between the main and nearby property. The diameter and operating pressure are already known.



12-Inch 10-35 psig Cast Iron Mains Benchmark Study

November 29, 2012

For: Jeff Meyers
Philadelphia Gas Works



I) *Executive Summary*

Background

GL Noble Denton has been engaged by the Philadelphia Gas Works (PGW) to conduct a benchmark study on the replacement of large diameter cast iron mains. The study benchmarks nine distribution utilities, including PGW, to determine replacement strategies for 12-inch diameter cast iron mains. As part of the benchmark study, PGW has requested that GL Noble Denton perform a replacement analysis on the 12-inch cast iron mains to determine the most efficient approach to replacing these pipes, using the MRP software, while managing the risk of the system.

Benchmarking Study

The benchmarking study for PGW was extensive and the full results are contained within the main body of the report, but the main points arising from this exercise are detailed within this summary. PGW was compared with eight distribution utilities. The eight systems are all centered around a central inner city, and are thus considered to be the most-comparable benchmark that could be used. These companies tended to operate large amounts of older, cast iron pipe and were predominantly located in the northeastern part of the U.S.

The statistics presented within this benchmarking study report are primarily publicly available and have been sourced from the "U.S. Department of Transportation's Annual Report for Gas Distribution System," covering the 7-year period ending in 2011.

The main points to emerge from this study are as follows:

1. PGW has a much higher than average amount of cast iron pipe (50.9% of its mains) compared to the other benchmark utilities. This tends to increase the overall risk from the system as breaks from cast iron pipe are one of the most common causes of incidents. (p. 14 – figure 4)
2. The nine distribution companies together contain 47.4% of all 12-inch cast iron mains (of all pressures) in the US and 39.8% of all cast iron mains in the US, even though they only account for 4.5% of the total mileage of mains in the U.S. These statistics verify the selection of the nine utilities as a very comparable benchmarking group. (p. 12 – figure 2)
3. PGW has a greater than average 12-inch cast iron (of all pressures) inventory (4.2%) as a percentage of all mains in PGW's system, compared to the other benchmark utilities. (p. 14 – figure 5)
4. PGW has made remarkable progress in lowering their number of reportable incidents over the 22-year period since 1980. From a high of 12 reportable incidents on PGW's system in 1982, there have only been two incidents on PGW's system in the last 6 years. Considering only the incidents that have involved cast iron, PGW has experienced only three of these in the last 10 years. (p. 31 – figure 20)



12-Inch 10-35 psig Cast Iron Mains Benchmark Study

5. PGW had a below average number of incidents (1) as compared with the other benchmark companies, between the years 2010 and 2012, for all causes, sizes, and piping materials. (p. 34 – figure 23)
6. The majority of PGW's incidents from all causes occur in the January to February months. Incidents involving just cast iron mains also peak during this period, especially in January. This appears to agree with PGW's assessment of the major cause of incidents on their system – frost upheaval of the ground. (p 37 – figure 27)
7. PGW has the lowest leak rate of the six survey respondents for 12-inch 10-35 psig cast iron. (p.29 – figure 18)
8. PGW has the mean break rate of the survey respondents for 12-inch 10-35 psig cast iron. (p.29 – figure 19)

Replacement policy

As well as examining PGW's current position in terms of operating statistics, GL Noble Denton has also examined PGW's position in relation to replacement levels of 12-inch 10-35 psig cast iron. The main points of this examination are listed below.

1. According to responses from six surveyed companies, PGW replaces about an average amount of 12-inch 10-35 psig cast iron per year. The average includes two survey respondents that have small amounts of 12-inch cast iron in their system but have not replaced any of it. (p. 28-Figure 17)
2. The utility with the highest replacement mileage of the six surveyed companies replaces 4 miles of 12-inch 10-35 psig cast iron per year, or 2.8% of their 12-inch 10 psig & higher pressure cast iron inventory. (p. 28-Figure 17)
3. Two companies have not replaced any of their 12-inch 10-35 psig pressure cast iron. PGW replaced 1.01 miles per year, or 4.39% of their 12-inch 10-35 psig cast iron inventory. A replacement rate of 1 mile per year would be equivalent to a rate of 4.3%, while a replacement of 2 miles per year would equate to a rate of 8.7% per year. (p. 28-Figure 17)
4. According to the replacement analysis carried out by GL Noble Denton, replacing 2 miles of 10-35 psig 12-inch cast iron per year is the proper amount for reducing risk to an acceptable level. (p. 5 - see table below on next page)



12-Inch 10-35 psig Cast Iron Mains Benchmark Study

Scenario	Description	Cost of Replacement (MMS) over 10 years	% reduction in length of elevated pressure 12-Inch cast iron	% reduction in incidents after 10 years
A	1 mile per year	38.55	47.90	96.07
B	2 miles per year	75.19	93.42	99.60
C	3 miles per year	80.48	100	100
D	5 miles per year	80.48	100	100

Conclusions and Recommendations

The results of the analysis carried out by GL Noble Denton have shown that PGW operates a distribution system which is typical of one operating in a central inner city area, where the mains population is very well established and there are constraints on the amount of replacement possible because of the density of other services and property.

Due to the recent instances of accidents on large diameter cast iron mains in the U.S., and the overall reduction of risk for the distribution system exhibited by PGW's marked reduction in all reportable incidents, GL Noble Denton concludes that 2 miles of 12 inch high pressure cast iron replacement per year provides the proper balance of risk reduction for a utility operating in a congested area.

Exhibit B

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

DIRECT TESTIMONY OF

DOUGLAS A. MOSER

ON BEHALF OF
PHILADELPHIA GAS WORKS

Docket No. P-2012-2337737

Philadelphia Gas Works

Distribution System Improvement Charge

January 18, 2013

1 **Q. PLEASE STATE YOUR NAME AND CURRENT POSITION WITH PGW.**

2 A. My name is Douglas A. Moser. My position with PGW is Executive Vice President and
3 Acting Chief Operating Officer.

4 **Q. PLEASE SUMMARIZE YOUR BACKGROUND AND EXPERIENCE.**

5 A. I received a Bachelor of Science degree in Chemical Engineering from Pennsylvania
6 State University in 1979. Also, I received a Masters in Business Administration from
7 Widener University in 1990. I have held the following positions at PGW: Engineering
8 Assistant; Production Engineer; Supervisor – Gas Conditioning; Operations Engineer –
9 Gas Processing Department; Manager – Gas Control; Manager – Gas Acquisition; Senior
10 Project Manager – Strategic Planning Department and Vice President and Senior Vice
11 President of Gas Management.

12 **Q. HAVE YOU EVER PROVIDED TESTIMONY BEFORE THIS COMMISSION?**

13 A. Yes. I submitted testimony for the PGW 1307(f) Annual Gas Cost Rate (“GCR”) filings
14 in Docket Nos. R-2012-2286447, R-2011-2224739, R-2010-20157062, R-2009-2088076,
15 R-2008-2021348 and R-00072110.

16 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?**

17 A. My testimony focuses on PGW’s Long Term Infrastructure Improvement Plan (“LTIIIP”),
18 filed with the Commission on December 3, 2012 at Docket No. P-2012-2337737, and the
19 connection between the Company’s LTIIIP and the Distribution System Improvement
20 Charge (“DSIC”) that is the subject of this proceeding. The purpose of my testimony is
21 to explain PGW’s LTIIIP and show how the Company’s proposed accelerated main
22 replacement program is in the public interest, is cost-effective and will ensure and
23 maintain adequate, efficient, safe, reliable and reasonable service.

1 **Q. PLEASE PROVIDE A GENERAL DESCRIPTION OF PGW'S GAS**
2 **DISTRIBUTION SYSTEM.**

3 A. PGW's gas distribution system serves more than 500,000 customers in Southeastern
4 Pennsylvania in the County and City of Philadelphia using approximately 3,000 miles of
5 natural gas mains and some 3,000 miles of service lines ("services"). PGW mains are
6 composed of 51% cast iron, 28% plastic and protected coated steel and 21% unprotected
7 coated steel and ductile iron.¹ The Company's services are made up of 72% plastic and
8 protected coated steel, 23% bare steel and 5% unprotected coated steel.² There are
9 approximately 1,220 miles of 8-inch and smaller LP/IP cast iron main, 22 miles of 12-
10 inch and smaller HP cast iron main and 16 miles of 30-inch HP cast iron main located
11 throughout the City of Philadelphia.³

12 **Q. WHAT IS THE AGE PROFILE OF PGW'S DISTRIBUTION SYSTEM?**

13 A. Like most utilities in the Northeast region of the country, PGW has hundreds of miles of
14 mains that have been under ground for many decades and will require replacement in the
15 short to medium term in order to maintain safe and reliable service. PGW's LTIIIP
16 provides the total mileage by age range for the three cast iron main categories that PGW
17 plans to replace during the five-year LTIIIP period.⁴

18

¹ See, PGW LTIIIP at 7.

² *Id.*

³ HP, IP and LP stand for high, intermediate and low pressure, respectively. See, PGW LTIIIP at 10. The pressure readings range from 10 to 35 psig for HP mains and 4.5 inches WC to 5 psig for LP/IP mains.

⁴ See, PGW LTIIIP at 7-8.

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Q. DOES PGW HAVE IN PLACE A PROGRAM TO REPLACE OLDER MAINS?

A. Yes. PGW has made substantial strides in its cast iron main and steel service replacement programs over the last 15 years by replacing and/or removing approximately 250 miles of cast iron main and 150,000 steel services with plastic and protected coated steel. Currently, PGW is removing cast iron main of all sizes at a rate of 18 miles per year. If PGW’s proposed LTIIP is approved as submitted, PGW expects to increase the rate of replacement of cast iron mains to approximately 25 miles per year.

Q. HOW DOES PGW IDENTIFY MAINS THAT SHOULD BE REPLACED?

A. PGW employs traditional risk management analysis programs, benchmarking analyses/studies and the Company’s Main Replacement Prioritization (“MRP”) model. Also, PGW’s replacement program is informed by its experience from recent incidents at PGW and other natural gas distribution companies (“NGDCs”). The tools that the Company used to formulate its LTIIP include PGW’s Distribution Integrity Management Program (“DIMP”), the Advantica Benchmarking Analysis, Risk Analysis and Model, Replacement Analysis and Computerized Main Prioritization and Ranking Program issued on June 2, 2008. Also, PGW employed the Advantica Main Replacement Prioritization Model, the GL Noble Denton 12-Inch 10-35 psig Cast Iron Mains Benchmarking Study issued on September 7, 2012 and its Field Observations and System Performance Analysis. Excerpts and summaries of these different analysis tools were provided as appendices to PGW’s LTIIP filed on December 3, 2012. Finally, PGW considered other factors in order to identify infrastructure property for inclusion in the LTIIP, such as recent incidents involving 12-inch mains on the PGW and UGI systems,

1 and PGW's recent discovery of localized corrosion on a section of 30-inch HP main and
2 surrounding ground conditions that contribute to main corrosion.

3 **Q. WHAT IS THE PRIMARY OBJECTIVE OF PGW'S LTIP?**

4 A. The primary objective of PGW's LTIP is to present a plan to the Commission, in
5 compliance with Act 11, to continue the Company's efforts to improve the safety and
6 reliability of its infrastructure. PGW intends to implement these improvements by
7 reducing the Company's cast iron main inventory followed by the removal of the
8 Company's unprotected coated steel and ductile iron main. In its LTIP, the Company is
9 proposing an approach that is designed to accelerate the replacement rate of mains in
10 order to improve the safety and reliability of PGW's distribution system.

11 **Q. PLEASE DESCRIBE PGW'S RECOMMENDED ACCELERATED**
12 **REPLACEMENT PROGRAM?**

13 A. PGW has formulated a five-year accelerated replacement program for the 2013-2017
14 timeframe that identifies categories of cast iron main that are the most prudent to replace
15 based on an overall evaluation of all serviceability factors. First, PGW will give greater
16 priority to the removal of 12-inch and smaller high-pressure mains. The decision to focus
17 of 12-inch main first is based on recent incidents with 12-inch main on PGW's and UGI's
18 distribution systems. Second, PGW will accelerate replacement of 30-inch high-pressure
19 mains based on PGW's recent discovery of localized corrosion on a section of 30-inch
20 HP main in its system. The program, if approved, will remove entirely the 12" and 30"
21 cast iron main categories from PGW's system by 2023. Third, PGW will speed up the
22 replacement of 8" and smaller, low to intermediate pressure, cast iron main. PGW's
23 distribution system does not contain any bare steel mains, so this category of main is not
24 part of the Company's accelerated replacement program.

1 **Q. IS THE PROPERTY PROPOSED TO BE REPLACED ELIGIBLE PROPERTY**
2 **UNDER ACT 11?**

3 A. Yes. The property proposed to be replaced, as described above, is generally
4 characterized as piping, couplings and valves and are DSIC-eligible under Section 1351
5 of Act 11.⁵

6 **Q. WHAT IS THE COST OF THE PROPOSED ACCELERATED REPLACEMENT**
7 **PROGRAM?**

8 A. PGW estimates that the annual cost of the accelerated replacement program in its LTIIP
9 is approximately \$22 million per year over and above what the Company currently
10 spends for its cast iron main replacement program.

11 **Q. HOW WILL THESE ADDITIONAL COSTS BE RECOVERED?**

12 A. As Mr. Dybalski explains in his testimony, the amount needed to implement PGW's
13 accelerated replacement program will be recovered through the Company's proposed
14 DSIC tariff. PGW has designed its accelerated replacement program to ensure that the
15 entirety of the additional \$22 million in expenditures for accelerated main replacement is
16 eligible for recovery under its DSIC pursuant to Act 11. Any limitation on DSIC
17 recovery for these expenditures will result in a corresponding reduction of the scope of
18 the accelerated main replacement program described here. PGW plans to fund the
19 accelerated main replacement program via the DSIC on a pay-as-you-go basis, so the
20 Company does not plan to issue any long term debt to fund the program.

21

⁵ 66 Pa. C.S. § 1351. PGW also plans to replace other DSIC-eligible property including the unprotected bare and unprotected coated steel services and meter sets associated with these cast iron mains, and the related eligible property includes gas service lines, fittings, risers, meter bars and meters with attached AMR devices.

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Q. WHAT MEASURES HAS PGW TAKEN TO ENSURE THAT ITS LTIIP IS COST-EFFECTIVE?

A. The Company has taken a number of steps to ensure that the LTIIP is implemented in a cost-effective manner. First, as discussed previously, the program will be funded on a pay-as-you-go basis to avoid the issuance of long term debt and the negative consequences that would follow from such a course. This “paygo” approach reduces costs for customers and prevents adverse effects to PGW’s cash flow, debt-equity ratio and bond ratings. Second, PGW has employed a Main Prioritization Model that shows that the Company’s LTIIP reduces future breakage repair costs because the accelerated replacement program will reduce serious incidents and breakage repairs. In addition, the Company will use a competitive bidding process that seeks to add new contractors for planning, procurement and construction to create a larger bidding pool and more competitive bid prices.

Q. WHAT MEASURES HAS PGW TAKEN TO ENSURE THAT ITS LTIIP MAINTAINS ADEQUATE, EFFICIENT, SAFE, RELIABLE AND REASONABLE SERVICE?

A. PGW has retained the services of GL Noble Denton (formerly d/b/a Advantica) to prepare benchmarking analyses and studies comparing PGW’s replacement programs to programs of other similarly-situated utilities. The benchmarking study performed by Advantica in 2008 found that PGW’s baseline 18-mile replacement program had the fifth highest average percentage of cast iron main replaced each year out of eight utilities studied. A hypothetical 24-mile replacement program resulted in PGW’s ranking moving up to second in replacement percentage for the group. Under its LTIIP, PGW proposes to replace 25 miles of main per year.

1 PGW also implemented Advantica's Main Replacement Prioritization ("MRP") Model.
2 Advantica's assessment included modeling of detailed distribution system data from
3 PGW and an evaluation of different scenarios based upon extensive historical failure data
4 from other gas distribution systems. The MRP program targets 8" and smaller cast iron
5 mains for replacement based on parameters such as main size, break history, leak history,
6 pipe age, service length and gas leakage migration patterns into buildings. Each section
7 of main in the system is evaluated and given a risk score based on a weighting scheme
8 assigned to each parameter (i.e., risk, condition, gas leakage migration patterns, etc.), and
9 sections of main are then ranked by their risk score to determine the priority of
10 replacement. PGW's assessment concluded that prioritizing replacement based on the
11 MRP risk score is the most effective way to reduce serious incidents, breakage repairs
12 and future breakage repair costs.

13 A 2012 study by GL Noble Denton concluded that replacing 2 miles of 12" HP cast iron
14 main per year would provide the proper level of risk reduction in reportable incidents for
15 a utility like PGW that operates a natural gas distribution system in a congested area such
16 as the City of Philadelphia. Based on these findings, PGW is proposing to implement a
17 replacement program beginning in 2013 which will remove an average of 2 miles of
18 larger-sized HP mains per year until all of the Company's 12" HP mains are completely
19 replaced by 2022.

20 **Q. DOES PGW HAVE ADDITIONAL INTERNAL PROCESSES IN PLACE TO**
21 **ENSURE THAT THE LTIP MAINTAINS SAFE AND RELIABLE SERVICE?**

22 A. Yes. PGW also relies on its Distribution Integrity Management Program ("DIMP") as a
23 comprehensive process that requires PGW to undertake an assessment of its entire
24 distribution system. PGW's DIMP identifies, evaluates and prioritizes threats to the

1 distribution system and helps the Company identify the most appropriate measures to
2 address any identified risks.

3 Field observations are another important component of the Company's commitment to
4 ensure safe and reliable service. When main is exposed, PGW personnel inspect the pipe
5 and identify any localized corrosion and ground conditions that contribute to main
6 corrosion. Recently, PGW exposed a section of 30" HP main and discovered localized
7 corrosion. As a result, the Company studied two smaller segments of the exposed main
8 and discovered levels of soil pH and moisture that constitute ground conditions that
9 contribute to main corrosion. Based on these observations, PGW considers it reasonable
10 and prudent to include the replacement of 30" HP main in its LTIIP as described above.
11 Lastly, the Company continues to identify segments of under-utilized or redundant main
12 segments that can be removed from service while still maintaining adequate, efficient,
13 safe, reliable and reasonable service. PGW has targeted several large segments of 20"
14 and 12" main that can be removed from service or abandoned. PGW will monitor its cast
15 iron inventory for opportunities to remove/abandon any HP main that is between 12" and
16 30", and if any of these mains is determined to be redundant or under-utilized, the
17 Company will take the proper steps to remove the main from service.

18 **Q. DOES PGW HAVE A WORKFORCE MANAGEMENT PLAN TO ENSURE**
19 **THAT THE PROPOSED IMPROVEMENTS AND REPLACEMENT WORK IS**
20 **PERFORMED IN A COST-EFFECTIVE, SAFE AND RELIABLE MANNER?**

21 A. Yes. As part of its baseline main replacement plan, PGW currently has departmental
22 structures and qualified staff in place for the prioritization, design, contracting, execution
23 and cost control of main replacement projects. The Planning Section is responsible for
24 prioritization of main replacement projects, design and permitting, cost estimates and bid
25 package preparation. The Supply Chain Department administers the procurement

1 functions such as contractor solicitation, bidding and contract management. Third party
2 contractors are qualified by PGW's Supply Chain Department on the basis of financial
3 fitness, safety performance, minority participation and training records. The
4 Construction Section is in charge of the execution of the contract. This group manages
5 the project, schedules, monitors and evaluates the overall program and the associated
6 costs. Contractors excavate, install, test and backfill new mains under the direct
7 supervision of a qualified PGW construction inspector, who is required to confirm that
8 the work meets all safety, performance and contractual standards.

9 **Q. WHAT OTHER MEASURES HAS PGW TAKEN IN THIS REGARD?**

10 A. PGW has taken a number of proactive steps to increase the probability of a successful
11 accelerated main replacement program. Some of these steps are as follows:

- 12 • The most recent collective bargaining agreement between PGW and the Gas Works
13 Employees' Union of Philadelphia, Local 686 includes a clause that allows contractors to
14 perform live gas work under certain circumstances.
- 15 • PGW has contracted with a consultant to help with the expected increase in main
16 replacement design work and additional consultants may be added depending on work
17 load.
- 18 • The Company has been soliciting the services of additional outside contractors to perform
19 main installation in an effort to keep contracts cost competitive.
- 20 • PGW is evaluating the services of an outside project management consulting firm to
21 assist in the development and execution of construction processes and procedures for the
22 proposed accelerated main replacement program.

1 • The Company is developing an MRP program for 12” and larger cast iron main
2 replacement to complement the existing 8” and smaller MRP program.

3 • PGW is evaluating the need for additional vehicles and mobile equipment for the
4 increased replacement plan.

5 **Q. DOES PGW HAVE TRAINING PROGRAMS IN PLACE TO ENSURE THAT**
6 **WORK IS PERFORMED IN A SAFE AND EFFICIENT MANNER?**

7 A. Yes. PGW has a dedicated Training Section that provides classroom, simulated and field
8 training and testing for its personnel to ensure that employees meet standards established
9 by the US Department of Transportation (“USDOT”) and the gas safety regulations and
10 orders of the Commission. The Company has in place a Natural Gas Pipeline System
11 Operator Qualification Plan to train and qualify employees in the USDOT’s Pipeline
12 Safety Regulations at 49 CFR 192 Subpart N. This Plan ensures safe and efficient natural
13 gas service by establishing objective criteria related to required qualifications for all
14 persons performing safety-sensitive operations and maintenance tasks on PGW’s system.
15 The Plan ensures that employees are able to perform assigned tasks, recognize and
16 respond appropriately to abnormal operating conditions, and maintain necessary records
17 to administer the plan.

18 **Q. PLEASE DESCRIBE PGW’S INITIAL SCHEDULE FOR THE PLANNED**
19 **REPAIR AND REPLACEMENT OF ELIGIBLE PROPERTY?**

20 A. The first phase of PGW’s LTIP begins during the Company’s 2013 fiscal year (i.e.,
21 September 1, 2012 to August 31, 2013) and is scheduled to be completed in the year
22 2063. The first phase is expected to eliminate 343 miles of cast iron main with an
23 estimated replacement cost of \$776 million. Concurrent with the accelerated program,
24 PGW will continue to remove 18 miles of cast iron main as part of its baseline main
25 replacement program. The combined replacement total will be 1,258 miles of cast iron

1 main with an estimated replacement cost of \$2.43 billion dollars for the duration of the
 2 program. The chart below illustrates the estimated timeline and costs associated with
 3 Phase 1 of the project:

PHASE 1 - ACCELERATED CAST IRON MAIN INVENTORY REDUCTION PROGRAMS BEGINNING IN 2013				
Size/Pressure	Total Inventory Reduction Mileage	Cost	Begins	Completed
12" & Smlr HP	22	\$89,602,756	2013	2022
30" HP	16	\$95,560,352	2013	2023
8" & Smlr LP/IP	305	\$590,630,499	2013	2063
	<u>343</u>	<u>\$775,793,606</u>		
Baseline 8" & Smlr LP/IP Program During Accelerated Inventory Reduction Period*				
Baseline*	915	\$1,650,542,275	2013	2063
Acceleration	305	\$590,630,499	2013	2063
8" & Smlr LP/IP	<u>1,220</u>	<u>\$2,241,172,773</u>	2013	2063
Baseline + Accelerated - Phase 1				
12" & Smlr HP	22	\$89,602,756	2013	2022
30" HP	16	\$95,560,352	2013	2023
8" & Smlr LP/IP	<u>1,220</u>	<u>\$2,241,172,773</u>	2013	2063
	<u>1,258</u>	<u>\$2,426,335,881</u>		

4
 5
 6 After establishing the initial accelerated program, PGW will begin the next four phases of
 7 its accelerated replacement program in 2022 for the remaining 265 miles of cast iron
 8 main. The replacement periods for Phases 2 through 5 have been scheduled based upon
 9 the same threat identification, threat evaluation and risk ranking procedures describe in
 10 this testimony and in PGW's LTIIP. The table below illustrates the estimated timeline
 11 and costs associated with Phases 2 to 5 of the project:

**PHASES 2 THROUGH 5
ACCELERATED CAST IRON MAIN INVENTORY REDUCTION PROGRAMS BEGINNING IN 2022**

Size/Pressure	Inventory Reduction Mileage	Inventory Reduction Accelerated By:	ACCELERATED Inventory Reduction Program			PRE-ACCELERATION Inventory Reduction Program		
			Cost	Begins	Ends	Cost	Begins	Ends
PHASE 2:								
20" HP	46	33 Years	\$446M	2022	2068	\$1.2B	2089	2101
16" HP	15	69 Years	\$87M	2023	2036	\$372M	2101	2105
24" HP	1	63 Years	\$8M	2023	2025	\$27M	2088	2088
PHASE 3:								
12" IP	3	42 Years	\$27M	2063	2063	\$61M	2105	2105
16" IP	1	42 Years	\$11M	2063	2063	\$25M	2105	2105
10" / 12" LP	101	14 Years	\$1.4B	2065	2091	\$2.9B	2105	2105
16" LP	45	50 Years	\$681M	2068	2085	\$2.0B	2125	2135
PHASE 4:								
20" / 24" LP	38	48 Years	\$878M	2085	2097	\$127M	2135	2145
PHASE 5:								
30" & Lrg. LP	15	49 Years	\$431M	2097	2100	\$1.1B	2145	2149
	265		\$3.9B*			\$7.7B*		

* The difference in cost between the accelerated and pre-acceleration program is due to an annual 2% inflation factor and different inventory reduction time periods.

1

2 **Q. DOES PGW'S ACCELERATED MAIN REPLACEMENT PROGRAM COMPLY**
3 **WITH THE OBJECTIVES OF ACT 11?**

4 A. Yes. Act 11 requires that the Company's submit a plan that is in the public interest, is
5 cost-effective and ensures the maintenance of adequate, efficient, safe, reliable and
6 reasonable natural gas service. PGW's proposed LTIP and DSIC meet the requirements
7 of the legislation.

8 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

9 A. Yes.

10

11

Exhibit C

PHILADELPHIA GAS WORKS
GAS SERVICE TARIFF



Issued by: Craig White
President and CEO

PHILADELPHIA GAS WORKS
800 West Montgomery Avenue
Philadelphia, PA 19122

List of Changes Made by this Tariff Supplement

GENERAL SERVICE – RATE GS (Page No. 83)

The Distribution System Improvement Charge has been added to the list of surcharges.

MUNICIPAL SERVICE – RATE MS (Page No. 87)

The Distribution System Improvement Charge has been added to the list of surcharges.

PHILADELPHIA HOUSING AUTHORITY SERVICE – RATE PHA (Page No. 90)

The Distribution System Improvement Charge has been added to the list of surcharges.

DEVELOPMENTAL NATURAL GAS VEHICLE SVC - RATE NGVS FIRM SERVICE (Page No. 135)

The Distribution System Improvement Charge has been added to the list of surcharges.

DISTRIBUTION SYSTEM IMPROVEMENT CHARGE (Page Nos. 151-152)

The Distribution System Improvement Charge has been added as a surcharge.

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GENERAL SERVICE - RATE GS

Rate: Applicable to all Retail Sales Service or Transportation Service rendered pursuant to this Rate Schedule on or after December 1, 2012

AVAILABILITY

Available for any purpose where the Company's distribution mains adjacent to the proposed Gas Service location are, or can economically be made, suitable to supply the quantities of Gas or Transportation Services required.

RATES

CUSTOMER CHARGE (per Meter (except parallel meters)):

\$ 12.00 per month for Residential and Public Housing Authority Customers.
\$ 18.00 per month for Commercial Customers
\$ 50.00 per month for Industrial Customers

Plus,

GCR (not applicable to GS Customers who transport gas through a qualified NGS):

\$ 0.57323 per Ccf for Residential and Public Housing
\$ 0.57323 per Ccf for Commercial Customers
\$ 0.57323 per Ccf for Industrial Customers

Plus,

DISTRIBUTION CHARGE (consisting of items (A) and (B), below):

(A) Delivery Charge:

\$0.63863 per Ccf for Residential
\$0.49820 per Ccf for Public Housing
\$0.46530 per Ccf for Commercial and Municipal Customers
\$0.45859 per Ccf for Industrial Customers

(B) Surcharges:

Universal Service and Energy Conservation Surcharge; Restructuring and Consumer Education Surcharge; Efficiency Cost Recovery Surcharge; and ~~Other Post Employment Benefit Surcharge~~ and Distribution System Improvement Charge. (C)

(C) – Change

MUNICIPAL SERVICE - RATE MS

Rate: Applicable to all Retail Sales Service or Transportation Service rendered pursuant to this Rate Schedule on or after December 1, 2012.

AVAILABILITY

Available to properties owned or occupied by the City of Philadelphia or the Board of Education, or any of their respective agencies or instrumentalities, for any type of Gas Service, unless purchased for resale to others, and where the Company's distribution mains adjacent to the proposed Gas Service locations are, or can economically be made, suitable to supply the quantities of Gas required; provided, however, that the rate shall not be available to Commercial Tenants of any such property.

RATES

CUSTOMER

CHARGE (per Meter (except parallel meters):

\$ 18.00 per month

Plus,

GCR (not applicable to MS Customers who transport Gas through a qualified NGS):

\$0.57323 per Ccf

Plus,

DISTRIBUTION CHARGE (consisting of items (A) and (B), below):

(A) Delivery Charge:

\$0.34040 per Ccf

(B) Surcharges:

Universal Service and Energy Conservation Surcharge; and The Restructuring and Consumer Education Surcharge; the Efficiency Cost Recovery Surcharge; ~~and~~ Other Post Employment Benefit Surcharge; and Distribution System Improvement Charge.

(C)

Also,

The following Riders may apply:

(C) – Change

PHILADELPHIA HOUSING AUTHORITY SERVICE - RATE PHA

Rate: Applicable to all Retail Sales Service or Transportation Services rendered pursuant to this Rate Schedule on or after December 1, 2012

AVAILABILITY

Available for all Gas usage in multiple dwelling Residential buildings containing 10 or more dwelling units, owned and operated by the Philadelphia Housing Authority, where cooking shall be performed exclusively with Gas and where Gas Service shall be supplied through one or more single point metering arrangements at locations where the Company's distribution mains adjacent to the proposed Gas Service locations are, or can economically be made, suitable to supply the quantities of Gas required.

This rate is also available for all Gas usage in single and multiple dwelling Residential buildings, containing less than 10 dwelling units, provided, and only so long as, Gas is used exclusively for cooking, water heating and space heating for all such Residential buildings owned and operated by the Philadelphia Housing Authority, except (a) buildings operated by the Philadelphia Housing Authority, prior to the original effective date of this rate (January 1, 1969), and (b) buildings for which, in the judgment of the Company, such Gas Service cannot be provided economically.

RATES

CUSTOMER

CHARGE (per Meter (except parallel meters);

\$18.00 per month

Plus,

GCR (not applicable to PHA customers who transport gas through a qualified NGS):

\$ 0.57323 per Ccf

Plus

DISTRIBUTION CHARGE:

DISTRIBUTION CHARGE (consisting of item (A) and (B), below):

(A) Delivery Charge:

\$0.41480 per Ccf

(B) Surcharges:

Universal Service and Energy Conversation Surcharge; The Restructuring and Consumer Education Surcharge; the Efficiency Cost Recovery Surcharge; ~~and~~ Other Post Employment Benefit Surcharge; Distribution System Improvement Charge. (C)

(C) – Change

DEVELOPMENTAL NATURAL GAS VEHICLE SERVICE - RATE NGVS
FIRM SERVICE

Rate: Applicable to all Retail Sales Service rendered pursuant to this Rate Schedule on or after
December 1, 2012

AVAILABILITY

This service is available to provide uncompressed Natural Gas to any Customer for the exclusive purpose of compressing such Gas for use as fuel for motor vehicles. The compression of the Natural Gas to the pressure required for use as a motor vehicle fuel will be conducted by the Customer, at the Customer's designated premises. Service shall only be available where the Company's distribution system is, or can economically be made available to supply the service. Each Customer will be required to execute a service agreement which will specify terms and conditions of service.

CHARACTER OF SERVICE

Service under this rate schedule is firm and shall only be interrupted in the case of operating emergencies experienced by the Company.

MONTHLY RATE

CUSTOMER CHARGE:

\$35.00 per month

Plus,

GCR (not applicable to PHA customers who transport gas through a qualified NGS):

\$ 0.57323 per Ccf

Plus

DISTRIBUTION CHARGE:

DISTRIBUTION CHARGE (consisting of item (A) and (B), below):

(A) Delivery Charge:

\$0.13212 per Ccf

(B) Surcharges:

Universal Service and Energy Conversation Surcharge; and The Restructuring and Consumer Education Surcharge; and Distribution System Improvement Charge. (C)

(C) – Change

DISTRIBUTION SYSTEM IMPROVEMENT CHARGE (DSIC)

In addition to the net charges provided for in this Tariff, a volumetric charge for each rate class as set forth in this tariff will apply consistent with the Commission Order dated _____ at Docket No. P-2012-2337737 approving the DSIC. The volumetric charges for service rendered on or after March 1, 2013 are:

- a) \$0.04540 per Ccf for Residential and Public Housing Customers on Rate GS;
- b) \$0.03082 per Ccf for Commercial Customers on Rate GS;
- c) \$0.03424 per Ccf for Industrial Customers on Rate GS;
- d) \$0.02706 per Ccf for Municipal Customers on Rate MS; and
- e) \$0.03263 per Ccf for The Philadelphia Housing Authority on Rate PHA.
- f) \$0.03082 per Ccf for Firm Natural Gas Vehicle Service Customers on Rate NGVS.

1. General Description

A. Purpose: To recover the reasonable and prudent costs incurred to repair, improve, or replace eligible property which is completed and placed in service and recorded in the individual accounts, as noted below, between base rate cases and to provide the Utility with the resources to accelerate the replacement of aging infrastructure, to comply with evolving regulatory requirements.

B. Eligible Property: The DSIC-eligible property will consist of the following:

- Piping (account 376);
- Couplings (account 376);
- Gas services lines (account 380) and insulated and non-insulated fittings (account 378);
- Valves (account 376);
- Excess flow valves (account 376);
- Risers (account 376);
- Meter bars (account 382);
- Meters (account 381);
- Unreimbursed costs related to highway relocation projects where PGW must relocate its facilities; and
- Other related capitalized costs.

C. Effective Date: The DSIC will become effective March 1, 2013.

2. Computation of the DSIC

A. Calculation: The initial DSIC, effective March 1, 2013, shall be calculated to recover the fixed costs of eligible plant additions that have not previously been reflected in the Utility's rates or rate base.

B. Recoverable Costs: The recoverable costs shall be amounts reasonably expended or incurred to purchase and install eligible property and associated financing costs, if any, including debt service, debt service coverage, and issuance costs.

C. Application of DSIC: The DSIC will be expressed as a volumetric charge per ccf carried to five decimal places and will be applied to the total customer usage. To calculate the DSIC, the projected annual recoverable costs associated with all property eligible for cost recovery under the DSIC will be divided by the Utility's projected sales volumes for distribution services for the annual period during which the charge will be collected.

PHILADELPHIA GAS WORKS

D. Formula: The formula for calculation of the DSIC is as follows:

$$\text{DSIC} = \frac{\text{DSI} + e}{\text{PSV}}$$

Where:

DSI = Recoverable costs (defined in Section B, directly above)
e = the amount calculated under the annual reconciliation feature or Commission audit, as described below.
PSV = Projected sales volumes for distribution services for the annual period during which the charge will be collected.

3. Quarterly Updates: Supporting data for each quarterly update (March 1, June 1, September 1 and December 1) will be filed with the Commission and served upon the Commission's Bureau of Investigation and Enforcement, the Office of Consumer Advocate, and the Office of Small Business Advocate at least one (1) day prior to the effective date of the update.

4. Customer Safeguards

A. Cap: The DSIC is capped at 5.0% of the amount billed to customers for distribution service (including all applicable clauses and riders) as determined on an annualized basis in the Company's most recent base rate on a customer class basis.

B. Audit/Reconciliation: The DSIC is subject to audit at intervals determined by the Commission. Any cost determined by the Commission not to comply with any provision of 66 Pa C.S. §§ 1350, et seq., shall be credited to customer accounts. The DSIC is subject to annual reconciliation based on a reconciliation period consisting of the twelve months ending August 31 of each year. The revenue received under the DSIC for the reconciliation period will be compared to the Company's eligible costs for that period. The difference between revenue and costs will be recouped or refunded, as appropriate, in accordance with Section 1307(e), over a one-year period commencing on December 1 of each year. If DSIC revenues exceed DSIC-eligible costs for the reconciliation period, such over-collections will be refunded with interest. Interest on over-collections and credits will be calculated at the residential mortgage lending specified by the Secretary of Banking in accordance with the Loan Interest and Protection Law (41 P.S. §§ 101, et seq.) and will be refunded in the same manner as an over-collection.

C. New Base Rates: The DSIC will be reset at zero upon application of new base rates to customer billings that provide for prospective recovery of the annual costs that had previously been recovered under the DSIC. Thereafter, only the fixed costs of new eligible plant additions that have not previously been reflected in the Utility's rates or rate base will be reflected in the quarterly updates of the DSIC.

D. Customer Notice: Customers shall be notified of changes in the DSIC by including appropriate information on the first bill they receive following any change. An explanatory bill insert shall also be included with the initial DSIC filing.

E. All customer classes: The DSIC shall be applied equally to all customer classes (as set forth in 4.A. above).

Exhibit D

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

DIRECT TESTIMONY OF

KENNETH S. DYBALSKI

ON BEHALF OF
PHILADELPHIA GAS WORKS

Docket No. P-2012-2337737

Distribution System Improvement Charge

Philadelphia Gas Works

January 18, 2013

1 **Q. PLEASE STATE YOUR NAME AND POSITION WITH THE COMPANY.**

2 A. My name is Kenneth S. Dybalski. My position is Director - Gas Planning &
3 Rates, at the Philadelphia Gas Works.

4 **Q. HOW LONG HAVE YOU HELD THIS POSITION?**

5 A. I have been the Director - Gas Planning & Rates since 2006 and prior to that I was
6 the Manager of Gas Planning from 2001 to 2006.

7 **Q. WHAT ARE YOUR VARIOUS JOB RESPONSIBILITIES?**

8 A. In my present position, I am responsible for developing and coordinating short
9 and long term planning of gas demand, gas supply, raw material expense and
10 revenue; overseeing the preparation of sales, sendout, revenue and fuel expense
11 projections; developing peak day/hour load projections; overseeing the
12 development of the various filings before the Pennsylvania Public Utility
13 Commission (PUC) and Philadelphia Gas Commission (PGC), including the
14 quarterly and annual Gas Cost Rate (GCR) filings; preparing the Integrated
15 Resource Planning Report; and providing supporting documentation for gas costs
16 related to PGW's Operating Budget before the Philadelphia Gas Commission.

17 **Q. PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND.**

18 A. I have received a BS and MBA from Temple University in Philadelphia,
19 Pennsylvania.

20 **Q. HAVE YOU EVER PROVIDED TESTIMONY BEFORE THIS**
21 **COMMISSION?**

22 A. Yes. I submitted testimony for the PGW 1307(f) Annual GCR Filings in Docket
23 Nos. R-2012-2286447, R-2011-2224739, R-2010-20157062, R-2009-2088076,
24 and R-2008-2021348. I have also submitted testimony in PGW's most recent base

1 rate proceeding (Docket No. R-2009-2139884) and PGW's 2008 Extraordinary
2 Rate Request (Docket No. R-2008-2073938). In addition, I have submitted
3 testimony in the Natural Gas Procurement Cost and Uncollectible Expense
4 Unbundling Proceeding (Docket No. R-2012-2333993).

5 **Q. WHAT TOPIC ARE YOU ADDRESSING IN YOUR DIRECT**
6 **TESTIMONY?**

7 A. My testimony addresses the development and implementation of the Distribution
8 System Improvement Charge ("DSIC") for PGW. I will also discuss: (a) the
9 DSIC calculation; (b) the DSIC tariff; (c) cost recovery; (d) quarterly adjustments;
10 and (e) reconciliation.

11 **Q. WHAT IS THE DISTRIBUTION SYSTEM IMPROVEMENT CHARGE**
12 **OR DSIC?**

13 A. The DSIC is a charge imposed by a utility to recover the reasonable and prudent
14 costs incurred to repair, improve or replace eligible property that is part of the
15 utility distribution system. Until the recent enactment of Act 11 of 2012, only
16 water utilities were authorized to have a DSIC. Under this new legislation,
17 natural gas, electric, water and wastewater utilities in Pennsylvania may petition
18 the Commission to approve the establishment of a DSIC surcharge. Under Act
19 11, PGW, a city natural gas distribution operation, is eligible to seek Commission
20 approval of a DSIC surcharge.

21 **Q. IS PGW ELIGIBLE TO SEEK COMMISSION APPROVAL OF A DSIC**
22 **CHARGE?**

23 A. Yes. Act 11 provides that only utilities that have filed a base rate case in the last
24 five (5) years are eligible for a DSIC. PGW filed its last base rate case under
25 Section 1308 of the Public Utility Code in 2009 at Docket No. R-2009-2139884.

1 In addition, PGW is a city natural gas distribution operation, and as such, is
2 eligible to seek approval of a DSIC under the statute.

3 **Q. ARE THERE ANY OTHER PREREQUISITES TO FILING A DSIC?**

4 A. Act 11 also requires that a utility must first file a “Long Term Infrastructure
5 Improvement Plan (LTIIP)” before a DSIC may be approved. PGW filed its
6 proposed LTIIP on December 3, 2012 in accordance with Section 1352 of the
7 Public Utility Code.¹

8 **Q. WHAT IS THE PURPOSE OF THE DSIC?**

9 A. The purpose of the DSIC is to allow utilities to recover costs associated with
10 incremental repairs, improvements and replacement of eligible property, which
11 costs have not been reflected in the utility’s rates or rate base, or will not be
12 reflected, until those costs may be included in a future rate case, in order to ensure
13 and maintain adequate, efficient, safe, reliable and reasonable service.

14 **Q. WHAT IS ELIGIBLE PROPERTY?**

15 A. Under Act 11, “eligible property” for a city natural gas distribution operation such
16 as PGW, includes: piping, couplings, gas service lines, insulated and non-
17 insulated fittings, valves, risers, meter bars, meters, unreimbursed costs related to
18 highway relocation projects and other related capitalized costs.

19 **Q. PLEASE SUMMARIZE THE CONTENTS OF PGW’S PROPOSED LONG**
20 **TERM INFRASTRUCTURE IMPROVEMENT PLAN AS REQUIRED BY**
21 **ACT 11?**

22 A. As described in more detail in Mr. Moser’s testimony, PGW’s LTIIP identifies the
23 eligible property for which the Company intends to seek recovery through the

¹ 66 Pa. C.S. §1352.

1 DSIC. In addition, the LTIPP contains, among other things, a general description
2 and location of the eligible property, the planned repairs and replacement of
3 eligible property, a schedule of planned improvements, an estimate of the quantity
4 of property to be improved and projected annual expenditures to implement the
5 LTIPP. The five-year plan (FY 2013-2017) focuses on reducing PGW's cast iron
6 main inventory followed by the removal of unprotected coated steel and ductile
7 iron main from the Company's system. If PGW's LTIPP is approved, the
8 Company will be able to accelerate the removal of cast iron main from its
9 inventory from 18 miles per year to 25.²

10 **Q. WHAT IS THE ESTIMATED COST OF THE ACCELERATED MAIN**
11 **REPLACEMENT PROGRAM OUTLINED IN PGW'S LTIPP?**

12 A. PGW plans to seek recovery of expenditures above the cost of the baseline
13 program on a pay-as-you-go basis. The Company will seek recovery of
14 approximately \$22 million annually through the DSIC surcharge for the first five
15 (5) years of the accelerated main replacement program and plans to spend
16 approximately a corresponding \$22 million annually for this program.

17 **Q. HOW IS THE ANNUAL RECOVERY AMOUNT DETERMINED?**

18 A. Mr. Moser determined the proposed annual recovery and spending amount of
19 approximately \$22 million based on PGW's initial estimate of the maximum
20 amount of DSIC recovery permitted under the statute. Act 11 provides that the
21 DSIC surcharge may not exceed 5% of the amount billed to customers under the
22 utility's applicable distribution rates, unless the Commission authorizes a higher

² See, *Philadelphia Gas Works Long Term Infrastructure Improvement Plan*, Docket No. P-2012-2337737.

1 amount.³ Exhibit KSD-1, attached to my testimony, shows the amount billed to
2 customers for distribution service (including all applicable clauses and riders), as
3 determined on an annualized basis, utilizing the compliance filing from PGW's
4 last distribution rate case. That amount is \$517,032,000. Five percent (5%) of
5 this annualized distribution revenue is approximately \$25.85 million.⁴ Therefore,
6 PGW's proposed annual incremental spending, as proposed in its LTIP, is within
7 the 5% cap.

8 **Q. HOW DOES PGW INTEND TO RECOVER ITS ELIGIBLE COSTS?**

9 A. Pursuant to the DSIC statute, PGW is filing a tariff that establishes an automatic
10 adjustment of rates to recover amounts reasonably expended or incurred to
11 purchase and install eligible property and associated financing costs, if any.⁵

12 Exhibit KSD-2, attached to this testimony, is PGW's proposed DSIC tariff. PGW
13 used the Commission's model DSIC tariff as a guide in developing this tariff.⁶

14 **Q. PLEASE EXPLAIN THE MAIN ELEMENTS OF PGW'S PROPOSED**
15 **DSIC TARIFF.**

16 A. PGW's proposed DSIC tariff sets forth the rules relating to the DSIC surcharge.
17 First the tariff lists the eligible property by account number. The tariff also
18 establishes the effective date of the DSIC and the method for calculating the
19 charge. In addition, the tariff establishes the volumetric charges for each rate
20 class and the manner in which the DSIC will be applied and updated periodically.
21 Finally, the DSIC tariff enumerates the customer safeguards required by the

³ 66 Pa. C.S. §1358(a)(1).

⁴ 517,032,000 x .05 = 25,851,600

⁵ 66 Pa. C.S. §1357(c).

⁶ *See, Implementation of Act 11 of 2012*, Docket No. M-2012-2293611 (Order issued Aug. 2, 2012).

1 statute, including the 5% cap and the requirements for audits, reconciliation,
2 notice and the equal application of the DSIC to all customer classes.

3 **Q. WHAT IS THE EFFECTIVE DATE OF THE TARIFF?**

4 A. The effective date of the tariff is March 1, 2013, subject to Commission approval
5 of PGW's LTIP and its DSIC Petition.

6 **Q. HOW WILL PGW CALCULATE THE DSIC SURCHARGE?**

7 A. Under the tariff, PGW will calculate the DSIC surcharge using the formula DSIC
8 = $(DSI + e) / PSV$, where DSI represents recoverable costs, "e" stands for the
9 amount calculated under the annual reconciliation feature or Commission audit,
10 and PSV is the projected sales volumes for distribution services for the year
11 during which the charge will be collected ("non-gas" revenues).

12 **Q. HOW WILL THE DSIC CHARGE BE APPLIED TO CUSTOMERS'**
13 **BILLS?**

14 A. PGW will bill its customers for the DSIC on a "bills rendered" basis; the
15 surcharge will be expressed as a volumetric charge per Ccf carried to five (5)
16 decimal places; and the surcharge will be applied to total customer usage. The
17 DSIC will be applied equally to all customer classes as a volumetric charge and
18 will be at or below the 5% cap established in the statute. Exhibit KSD-1,
19 attached to my testimony, shows how the DSIC will be applied to each customer
20 class on a volumetric basis to produce PGW's projected annual recovery and
21 spending amount of approximately \$22 million.

22

1
2 **Q. HOW WILL PGW'S QUARTERLY DSIC REVENUES BE**
3 **DETERMINED?**

4 A. PGW is proposing to determine its DSIC revenues on an annualized basis to
5 recover the \$22 million the Company expects to invest in eligible improvements
6 over a 12-month period. Exhibit KSD-1, attached to my testimony, shows how
7 the Company's DSIC revenues will be derived from each customer class through a
8 volumetric charge to produce approximately \$22 million over 12 months.

9 **Q. HOW WILL PGW BE REIMBURSED FOR ELIGIBLE COSTS?**

10 A. PGW is proposing to set the DSIC to recover the costs incurred as part of the
11 accelerated replacement program on an annualized basis, instead of being
12 reimbursed based on a calculation of actual costs for plant placed in service for
13 each quarter. Annualizing PGW's cost incurrence allows the Company to recoup
14 over 12 months the \$22 million in construction expense proposed in its LTIP.
15 This approach, although different from the methodology proposed by the
16 Commission⁷ and used by water companies that have a DSIC surcharge in place
17 currently, is more appropriate for PGW. PGW, as a "Cash Flow" regulated
18 company, will be recovering in its DSIC the actual costs of the replacement
19 facilities plus the cost of installation (as permitted by Act 11). Since construction
20 activities do not proceed in equal increments each quarter during the year (i.e., the
21 majority of construction occurs outside of the winter period), if PGW included in
22 its DSIC the costs of construction in the prior quarter there will likely be large
23 swings in the level of the DSIC, following the swings in the level of construction

⁷ See, *Final Implementation Order* at 24.

1 in the prior quarter. By recovering an annualized amount for costs incurred in
2 eligible improvements (with quarterly updates to reflect any changes to its
3 construction budget) these swings will be reduced and the quarterly charges will
4 be more manageable.

5 **Q. DOES PGW PROPOSE TO MAKE ANY QUARTERLY ADJUSTMENTS**
6 **IN THE ANNUALIZED DSIC CHARGE?**

7 A. Yes. First, PGW proposes to include a reconciliation to either charge or credit
8 customers for the difference between projected and actual billed amounts.

9 Second, PGW will adjust its going forward annualized charges to account for any
10 changes in its incremental construction budget (keeping in mind that it may not
11 bill more than the DSIC's 5% cap).

12 **Q. PLEASE EXPLAIN THIS ADJUSTMENT IN GREATER DETAIL**

13 A. Certainly. PGW reviews its approved construction budget on a regular basis and
14 revises its plans based on actual experience or new information. If during the year
15 it becomes clear that PGW will not accomplish all of the replacements that it had
16 budgeted, PGW would revise the budget and the corresponding annualized and
17 quarterly DSIC cost. It would also potentially revise its budget if it determined to
18 increase replacement for a type of main or mains in a certain location, because of
19 information gathered during the replacement process or other changes in
20 circumstances. Of course, PGW understands that it is constrained by the 5%
21 DSIC cap (as discussed above) as well as the level of expenditure approved in its
22 LTIP. After the end of the year, and as explained below, PGW will reconcile its
23 actual expenditures to its projected expenditures and will either charge or credit
24 customers for any difference in the second year of the DSIC.

1 **Q. WHAT IS THE TIMING OF THE QUARTERLY DSIC ADJUSTMENTS?**

2 A. The initial DSIC, effective March 1, 2013, is calculated to recover \$22 million on
3 an annualized basis. After this initial DSIC, the charge will be updated quarterly
4 as indicated previously.

5 PGW's proposal to use the same quarterly adjustment schedule for the DSIC and
6 the GCR is intended to be a more efficient way of handling the Company's
7 compliance with the Commission's regulatory requirements for these two rate
8 mechanisms. PGW will use data and models it uses already for the calculation of
9 its GCR to compute the DSIC charge, so it makes sense that the filings should
10 occur under the same quarterly schedule. Supporting data for each quarterly
11 update will be filed with the Commission and served upon the Commission's
12 Bureau of Investigation and Enforcement ("BIE"), the Office of Consumer
13 Advocate ("OCA") and the Office of Small Business Advocate ("OSBA") at least
14 one (1) day prior to the effective date of the update.

15 **Q. HOW WILL PGW HANDLE RECONCILIATIONS?**

16 A. As noted, under its tariff, PGW's proposed DSIC is subject to annual
17 reconciliations to correct for under- or over-collection of amounts recovered to
18 pay for DSIC-eligible projects. The annual reconciliation is based on the 12-
19 month period ending on August 31st of each year (which coincides with PGW's
20 fiscal year). PGW intends to compare the revenues received through the DSIC
21 surcharge for the reconciliation period against the Company's eligible costs (i.e.,
22 the amounts expended to place in service eligible property as per PGW's
23 approved LTIIP) for the same timeframe. Any difference between revenues and

1 costs will be recouped or refunded over a one-year period commencing on
2 December 1st of that year. Over-collections will be refunded to customers with
3 interest as set forth in the tariff.⁸ PGW also proposes to reconcile the DSIC on a
4 quarterly basis for differences between projected and actually billed volumes
5 during the prior quarter.

6 **Q. HOW WILL THE FIRST DSIC YEAR BE HANDLED?**

7 A. In the first year, DSIC revenues and DSIC cost recovery will be determined as
8 described above, except that the initial DSIC will be determined based on the
9 March 1, 2013 to August 31, 2013 time period for revenues or billing, but the cost
10 recovery will be based on DSIC eligible property placed in service between
11 November 1, 2012 to August 31, 2013.⁹ This assumes that the DSIC tariff will be
12 made effective for service rendered on or after March 1.

13 **Q. ARE THERE ANY OTHER CUSTOMER PROTECTIONS BUILT INTO**
14 **PGW'S PROPOSED DSIC TARIFF?**

15 A. Yes. The tariff provides that the DSIC will be reset at zero when new
16 Commission-approved base rates go into effect for PGW. Also, the tariff provides
17 that customers will be notified of changes to the DSIC by including information
18 on the first bill the customers receive following any adjustment to the charge.
19 PGW will comply with the statutory notice requirements under Section 1354 of
20 Act 11 by including a bill insert upon the submission to the Commission of the

⁸ See, Exhibit KSD-2.

⁹ Act 11 provides that the DSIC must be calculated to recover the fixed costs of eligible property that has been placed into service during the three-month period ending one month prior to the effective date of the DSIC. 66 Pa. C.S. § 1357(a)(1)(ii).

1 proposed DSIC and the initial DSIC tariff. Customers will be given notice again
2 when the Commission issues its Final Order on the DSIC filing.

3 **Q. HAS PGW PROVIDED ANY NOTICE OF THIS FILING TO**
4 **CUSTOMERS?**

5 A. Yes. During the February 2013 billing cycle, PGW will include a bill insert to all
6 customers informing them of this filing, the estimated impact of a DSIC on their
7 bills and their rights to intervene in the proceeding.

8 Also, as directed by the Commission's August 2, 2012 Implementation Order,
9 PGW will include a bill message on customer bills following any quarterly
10 changes to the DSIC. Also as suggested by the Commission, PGW intends to
11 review the specific language of the bill message with the Commission and the
12 Office of the Consumer Advocate before the first bill message is included in
13 customer bills.

14 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

15 A. Yes

PGW
Dkt. No. R-2009-2139884
Joint Petition for Settlement - May 12, 2010
Data From Exhibit 4 - Proof of Revenue

(\$000 omitted)

Allocation of \$22M DSIC Recovery Based on Base Rate Case Distribution Revenues

	(A)	(B)	(C)	(D)
	<u>Distribution</u> <u>Revenue*</u>	<u>Class % of</u> <u>Total Revenue</u>	<u>Allocation of</u> <u>Annual</u> <u>DSIC Recovery</u> <u>(A) X (B)</u>	<u>DSIC Recovery</u> <u>Div By</u> <u>Dist. Rev.</u> <u>(C) / (A)</u>
Residential	\$ 418,776	81.00%	\$ 17,819	4.26%
Commercial	\$ 79,088	15.30%	\$ 3,365	4.26%
Industrial	\$ 7,376	1.43%	\$ 314	4.26%
Municipal	\$ 7,727	1.49%	\$ 329	4.26%
PHA	\$ 4,066	0.79%	\$ 173	4.26%
Total Dist. Rev.	<u>\$ 517,032</u>	<u>100.00%</u>	<u>\$ 22,000</u>	<u>4.26%</u>

* The distribution revenue includes customer charge, universal service charge, restructuring and consumer education charge, delivery charge and OPEB charge revenues.

Calculation of 5% DSIC Limitation Based on Base Rate Case Distribution Revenues

Total Dist. Rev.	\$ 517,032
5% Limitation	5%
5% Revenue Cap	<u>\$ 25,852</u>

Calculation of DSIC Surcharge

	<u>Allocation of</u> <u>Annual</u> <u>DSIC Recovery</u> <u>(Col. C Above)</u>	<u>Annual</u> <u>Projected Sales</u> <u>Volumes</u> <u>12/1/12 GCR</u> <u>Filing</u>	<u>DSIC</u> <u>Surcharge</u> <u>Per Mcf</u>	<u>DSIC</u> <u>Surcharge</u> <u>Per Ccf</u>
Residential	\$ 17,819	39,072,919		
PHA GS		176,252		
	<u>\$ 17,819</u>	<u>39,249,171</u>	\$0.4540	\$0.04540
Commercial	<u>\$ 3,365</u>	10,916,785	\$0.3082	\$0.03082
Industrial	<u>\$ 314</u>	916,640	\$0.3424	\$0.03424
Municipal	<u>\$ 329</u>	1,215,130	\$0.2706	\$0.02706
PHA	<u>\$ 173</u>	530,323	\$0.3263	\$0.03263
NGV*			<u>\$0.3082</u>	<u>\$0.03082</u>

* Commercial surcharge applied to NGV customers because annual NGV sales volumes are < 1,000 Mcf.