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**People's Counsel**

June 15, 2020

Ms. Brinda Westbrook-Sedgwick  
Commission Secretary  
Public Service Commission  
1325 G Street N.W., Suite 800  
Washington, DC 20005

**Re: Formal Case No. 1154, *In the Matter of Washington Gas Light Company's Application for Approval of PROJECTpipes 2 Plan***

Dear Ms. Westbrook-Sedgwick:

Pursuant to Commission Order No. 20336, attached for filing in the above-referenced proceeding please find the *Office of the People's Counsel for the District of Columbia's Direct Testimony and the Office's Testimony Index*. Below is a list of the Office's witnesses:

Exhibit OPC (A) – Edward A. McGee

If there are any questions regarding this matter, please contact Thaddeus Johnson at (202) 727-3071.

Sincerely,

/s/ Sandra Mattavous-Frye

Sandra Mattavous-Frye  
People's Counsel

Enclosures

cc: Parties of Record

**BEFORE THE  
PUBLIC SERVICE COMMISSION  
OF THE DISTRICT OF COLUMBIA**

**In the Matter of**

**Washington Gas Light Company's  
Application for Approval of the  
PROJECT*pipes* 2 Plan**

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**Formal Case No. 1154**

**DIRECT TESTIMONY  
AND SUPPORTING EXHIBITS OF  
EDWARD A. MCGEE**

**Exhibit OPC (2A)**

**On Behalf of the  
Office of the People's Counsel  
for the District of Columbia**

**June 15, 2020**

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1 **I. INTRODUCTION**

2 **Q. PLEASE STATE YOUR FULL NAME, ADDRESS, AND OCCUPATION.**

3 A. My name is Edward A. McGee. My business address is P.O. Box #1659, Bethany Beach,  
4 DE. I am Principal Consultant of McGee Consulting, LLC, and I am currently working as  
5 an Engineering Associate with the Acadian Consulting Group (“ACG”). ACG is a research  
6 and consulting firm that specializes in the analysis of regulatory, economic, engineering,  
7 financial, accounting, statistical, and public-policy issues associated with regulated and  
8 energy industries. ACG is a Louisiana-registered Limited Liability Company. It was  
9 formed in 1995 and is located at 5800 One Perkins Place, Suite 5-F, Baton Rouge,  
10 Louisiana, 70808.

11 **Q. DO YOU HOLD ANY ACADEMIC DEGREES?**

12 A. Yes. I earned both a bachelors and master’s degree in Chemical Engineering from the  
13 University of Notre Dame. I also graduated from the University of Chicago with a Master  
14 of Business Administration (“MBA”). Attachment 1 provides my academic vita and  
15 includes a listing of my experience as a gas practice consultant and related positions in the  
16 energy industry.

17 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

18 A. I have been retained by the Office of the People’s Counsel for the District of Columbia  
19 (“OPC” or “Office”) to provide an expert opinion regarding gas management and  
20 engineering issues associated with the *Application for Approval of PROJECTpipes 2 Plan*  
21 filed with the Public Service Commission of the District of Columbia (“Commission” or



1 “PSC”) by Washington Gas Light Company (“WGL” or “the Company”) on December 7,  
2 2018,<sup>1</sup> as supplemented on April 23, 2020.<sup>2</sup>

3 **Q. HAVE YOU PREVIOUSLY PROVIDED YOUR EXPERT OPINION IN THIS**  
4 **PROCEEDING?**

5 A. Yes. On March 22, 2019, as corrected by an errata filed on March 26, 2019, OPC submitted  
6 with the Commission its *Initial Comments Regarding Washington Gas Light Company’s*  
7 *PROJECTpipes 2 Application* in Formal Case No. 1154.<sup>3</sup> OPC’s *Initial Comments*  
8 included an affidavit attested to by me. It is currently identified as OPC Exhibit (A). In  
9 addition, on April 8, 2019, the Office filed with the Commission its *Reply Comments*  
10 *Regarding Washington Gas Light Company PROJECTPIPES 2 Application Plan*.<sup>4</sup>

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<sup>1</sup> *Formal Case No. 1154, Application of Washington Gas Light Company for Approval of PROJECTPIPES 2 Plan (“Formal Case No. 1154”), Washington Gas Light Company’s Application for Approval of PROJECTpipes 2 Plan, filed December 7, 2018 (“PIPES 2 Application” or “Application”). For the remainder of this testimony, the second phase of the PROJECTpipes Program will be referred to as “PROJECTpipes 2” or “PIPES 2”. The first phase will be referred to as “PROJECTpipes 1” or “PIPES 1”, and the Program in general will be referred to as “PROJECTpipes” or the “Accelerated Pipe Replacement Program” or “APRP”.*

<sup>2</sup> *Formal Case No. 1115, In the Matter of Washington Gas Light Company’s Request for Approval of a Revised Accelerated Pipe Replacement Program (“Formal Case No. 1115”); Formal Case No. 1142, In the Matter of the Merger of AltaGas Ltd. and WGL Holdings, Inc. (“Formal Case No. 1142”); Formal Case No. 1154, In the Matter of Washington Gas Light Company’s Application for Approval of PROJECTpipes 2 Plan (“Formal Case No. 1154”); and Formal Case No. 1162, In the Matter of the Application of Washington Gas Light Company for Authority to Increase Existing Rates and Charges for Gas Service (“Formal Case No. 1162”), Washington Gas’s Supplemental Direct Testimony, filed April 23, 2020 (“Supplemental Direct Testimony” or “Supplemental Direct”).*

<sup>3</sup> *Formal Case No. 1154, Office of the People’s Counsel for the District of Columbia’s Initial Comments Regarding Washington Gas Light Company’s PROJECTpipes 2 Application, filed March 22, 2019 (“Initial Comments”).*

<sup>4</sup> *Formal Case No. 1154, Office of the People’s Counsel for the District of Columbia’s Reply Comments Regarding Washington Gas Light Company’s PROJECTpipes 2 Application, filed April 8, 2019 (“Reply Comments”).*

1 **Q. WERE YOU THE ONLY AFFIANT TO PROVIDE AN AFFIDAVIT ON BEHALF**  
2 **OF THE OFFICE IN EITHER ITS *INITIAL* OR *REPLY COMMENTS* REGARDING**  
3 **THE COMPANY'S *PIPES 2 APPLICATION*?**

4 A. No. I was not. Ms. Virginia Palacios provided one on behalf of the Office as well.  
5 However, per the Office's request, her affidavit was subsequently withdrawn by the  
6 Commission on May 30, 2019 through Order No. 19944.<sup>5</sup>

7 **Q. ARE YOU SUBMITTING ANY EXHIBITS IN SUPPORT OF YOUR**  
8 **RECOMMENDATIONS?**

9 A. Yes. I have included 29 exhibits in support of my direct testimony. With the exception of  
10 WGL's responses to OPC discovery requests, the exhibits were prepared by me or under  
11 my direct supervision.

12 **Q. HOW IS THE REMAINDER OF YOUR TESTIMONY ORGANIZED?**

13 A. My testimony is organized as follows:

- 14 • Section II. Summary of Recommendations
- 15 • Section III. Purpose of Accelerated Pipe Replacement Program ("APRP") and its  
16 Special Rate Treatment
- 17 • Section IV. Overview of WGL's Proposed Structure for PIPES 2 Gas Programs
  - 18 A. Company's Initial PIPES 2 Proposal (December 7, 2018)
  - 19 B. Company's Supplemental PIPES 2 Proposal (April 23, 2020)
  - 20 C. Major Changes Between Proposed PIPES 2 Replacement Programs and the  
21 PIPES 1 Replacement Program
- 22 • Section V. Summary of Accomplishments and Concerns Regarding PIPES 1

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<sup>5</sup> *Formal Case No. 1154*, Order No. 19944, ¶ 16, rel. May 30, 2019 ("Order No. 19944").

- 1           A. Amount of Pipe Replacement Performed During PIPES 1
- 2           B. Hazardous Leak Performance
- 3           C. Management Audit Report Regarding Performance
- 4           • Section VI. The Deficiencies with the PIPES 2 Plan
- 5           A.     The Company Has Not Resolved OPC’s Concerns with the PIPES 2 Plan
- 6                 1. Transmission projects should not be included in PIPES 2.
- 7                 2. Top-3 Optimain Replacement Programs.
- 8                 3. WGL has not addressed verification reporting on the expanded scope of its
- 9                 selection criteria for Programs 1 through 4, which include the phrase
- 10                “including Contingent Main and Affected Services”.
- 11               4. Consistent with the Liberty Report, the Commission should consider an
- 12                incentive-based- or performance-based funding mechanism.
- 13               5. Restoration work should be improved upon.
- 14               6. GHG emission-reduction claims conflict with results in PIPES 1.
- 15           B.     The Company’s Supplemental Direct Testimony Has Raised Additional
- 16                Concerns
- 17                 1. Interdependency of mercury regulator replacement program.
- 18                 2. WGL’s newly proposed Program for “Work Compelled by Others” and
- 19                 “Advance of Pavement”.
- 20                 3. WGL’s Advanced Leak Detection (“ALD”) pilot program proposal is
- 21                 insufficiently detailed regarding the use of ALD technology.
- 22                 4. The allocation of budgeted amounts among the proposed Programs.
- 23                 5. An Additional Management Audit Prior to Proposed End of PIPES 2.
- 24           • Section VII. Conclusions and Recommendations

1 **II. SUMMARY OF RECOMMENDATIONS**

2 **Q. WOULD YOU PLEASE SUMMARIZE YOUR PRIMARY RECOMMENDATIONS**  
3 **REGARDING THE PROPOSED PIPES 2 REPLACEMENT PROGRAM?**

4 A. My primary recommendation is that the Commission modify much of the Company's  
5 proposed Program. Specifically, I recommend the following improvements:

- 6 1. The Company should minimize (but not exclude) the practice of replacing services  
7 by themselves and maximize the practice of replacing mains and associated services  
8 as part of the same replacement project whenever possible. The budget for proposed  
9 Distribution Program 1 of PIPES 2 should be minimized given that services can be  
10 replaced at lower cost in Programs 2, 3, and 4.
- 11 2. The costs for portions of ALD trips not specifically detecting leaks for PIPES 2  
12 should not be assigned to PROJECT*pipes*.
- 13 3. Selection of appropriate ALD vendors should be based on their previous work and  
14 success with other gas utilities.
- 15 4. The amount of "Contingent Main" should either be limited to a maximum  
16 percentage of the total replacements each year, or, at a minimum, the actual amount  
17 and percentage of Contingent Main replaced during the previous year should be  
18 reported annually by each material type.
- 19 5. A performance measure should be included in PIPES 2 that would further lower  
20 the number of leaks the Company keeps in inventory each year.
- 21 6. As a condition of approving the PIPES 2 Plan, WGL should be required to provide  
22 a detailed plan that: (1) remedies the current restoration backlog in an expedited  
23 way that does not unduly impact the surcharge calculations; (2) ensures that  
24 restoration work is performed in a timely, sustainable way in the future; and (3)  
25 includes detailed information about the restoration backlog and the work being  
26 performed to address the backlog in WGL's Annual Project List and Annual  
27 Completed Projects Reconciliation Report submissions.
- 28 7. It is recommended that for the simplicity of reviewing the Company's status and  
29 progress, budget estimations versus actual expenditures, future planning, and  
30 overall effectiveness, the Mercury Regulator Replacement Program and APRP  
31 Program remain separate and distinct.
- 32 8. The Commission should reconsider its previous decision relating to "Work  
33 Compelled by Others," and the Company should remove this Program (Distribution  
34 Program 10) from its proposed list of programs eligible for accelerated rate  
35 treatment.

- 1 9. The policy to replace the top-three main segments calculated to be “most-risky” by  
2 the Company’s Optimain model should be continued during PIPES 2.
- 3 10. In addition to the replacement of the top-three “most-risky” segments, a second  
4 cast-iron Program that replaces smaller-diameter cast-iron mains would be  
5 beneficial.
- 6 11. The five-year term of the proposed PIPES 2 Plan should be shortened to three years,  
7 which would permit another outside management audit of the program to occur at  
8 the end, rather than during the middle, of PIPES 2 and enable the Commission and  
9 the parties to determine sooner how well Liberty’s recommendations are enhancing  
10 WGL’s management and overall performance. It is also recommended that the  
11 consultants that performed the management audit in PIPES 1 be considered for the  
12 recommended PIPES 2 audit in order to leverage the education and experience they  
13 acquired in the first audit.

14 I also address several items with respect to the Liberty Consulting Management  
15 Audit Report, as discussed herein.

16 **III. PURPOSE OF ACCELERATED PIPE REPLACEMENT PROGRAM AND**  
17 **ITS SPECIAL RATE TREATMENT**

18 **Q. WHAT IS THE PURPOSE OF NATURAL GAS PIPELINE REPLACEMENT**  
19 **ACCELERATED COST-RECOVERY MECHANISMS?**

20 A. Cost-recovery mechanisms have arisen over the past decade to provide utilities with the  
21 financial support needed to fund their accelerated pipeline replacement investments. The  
22 goal of these accelerated replacement programs, and their associated cost-recovery  
23 mechanisms, is to facilitate the replacement of aged and at-risk infrastructure that would  
24 not normally be done under traditional ratemaking practices. The underlying justification  
25 for these unique cost-recovery mechanisms, which allow utilities to expedite the recovery  
26 of their replacement-specific capital expenditures between traditional rate cases, is that the  
27 investments made under the program are over and beyond what should normally be  
28 included in base rates.

29 **Q. HAS THE COMMISSION REACHED A SIMILAR CONCLUSION IN THE PAST?**

1 A. Yes. The Commission has reached similar conclusions in its past evaluation and approval  
2 of the Company's APRP Program proposals. For instance, the Commission approved the  
3 Company's first APRP Program in Order No. 17431. In evaluating the Company's original  
4 proposal, the Commission raised several questions seeking to clarify and distinguish  
5 between "normal" or "base" levels of pipeline replacement spending versus those that were  
6 attributable to "accelerated" replacement activities. The Commission noted its concerns  
7 about clearly demarking normal versus accelerated investments related to its evaluation of  
8 the Company's original replacement program proposal made in a prior rate case.<sup>6</sup> During  
9 this review, the Commission noted in Order No. 17431: "our concerns [included] ... [the  
10 Company's] lack of clarity on how the Company's normal pipe replacement work (for  
11 which WGL is already being compensated in rates) is being identified and separated from  
12 the proposed accelerated pipeline replacement program."<sup>7</sup>

13 **Q. WAS THE COMMISSION'S APPROVAL OF THE COMPANY'S ORIGINAL**  
14 **REVISED PIPELINE REPLACEMENT PROGRAM CONTINGENT ON**  
15 **PROVING THE DIFFERENCE BETWEEN BASE SPEND AND REPLACEMENT**  
16 **ACTIVITIES?**

17 A. Yes. The Commission's approval was explicitly tied to the Company proving the  
18 difference between its base spend and the activities that were over and beyond those  
19 included in base rates. The Commission listed four qualifications for Programs that would

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<sup>6</sup> *Formal Case No. 1093*; and *Formal Case No. 1115*, Order No. 17431, rel. March 31, 2014 ("Order No. 17431").

<sup>7</sup> *Id.* at 60.

1 be eligible for tracker funding. One of those criteria included projects that “are not included  
2 in WGL’s rate base or in its most recent rate case.”<sup>8</sup> The Commission also noted that  
3 “projects that do not satisfy all these criteria [i.e., its four qualifications] must be funded  
4 through base rates with the recovery of the project costs established through a traditional  
5 rate case proceeding.”<sup>9</sup>

6 **Q. IS THE IDENTIFICATION OF BASE AND ACCELERATED REPLACEMENT**  
7 **INVESTMENTS SOMETHING COMMON WITH OTHER STATE REGULATOR**  
8 **PRACTICES?**

9 A Yes. For example, in New Jersey, the Board of Public Utilities’ (“BPU”) Infrastructure  
10 Investment Program (“IIP”) rules “allow a utility to accelerate its investment in the  
11 construction, installation, and rehabilitation of certain non-revenue producing utility plant  
12 and facilities that enhance safety, reliability, and/or resiliency.”<sup>10</sup> In Illinois, “qualifying  
13 infrastructure plant” includes only plant additions placed in service not reflected in the rate  
14 base used to establish the utility’s delivery base rates and may not include costs or expenses  
15 incurred in the ordinary course of business for the ongoing or routine operations of the  
16 utility.<sup>11</sup> Further, in Maryland, where the Company has an infrastructure recovery  
17 mechanism, the state legislature, in defining which infrastructure investments will be  
18 allowed in a special cost-recovery mechanism, clearly implies that these investments

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<sup>8</sup> *Id.* at 68.

<sup>9</sup> *Id.*

<sup>10</sup> N.J. Admin. Code § 14:3-2A.1(b) (Lexis 2019).

<sup>11</sup> 220 Ill. Comp. Stat. 5/9-220.3(b) (Lexis 2019).

1 should be of an extraordinary nature. For instance, the Strategic Infrastructure  
2 Development and Enhancement (“STRIDE”) legislation states that “eligible” investments  
3 are those that “do not increase revenues” (i.e., are non-growth oriented) and are also an  
4 investment “not included in the current rate base.”<sup>12</sup> This indicates that investments should  
5 be those that are new and incremental to traditional rate-base investments, not substitutes  
6 for rate-base-type investments—hence, the limitation to investments that are “not in rate  
7 base.”

8 **Q. ARE THERE OTHER STATES WITH INFRASTRUCTURE INVESTMENT**  
9 **COST-RECOVERY MECHANISMS?**

10 A. Yes. Exhibit OPC (2A)-1 provides a map of the states that have allowed utilities to  
11 implement and use various types of capital expenditure cost trackers as a means of  
12 recovering the costs associated with their infrastructure investments. There are at least 40  
13 states that allow for the use of cost-recovery mechanisms.

14 **Q. IS THE DESIGN OF COST-RECOVERY- OR SURCHARGE MECHANISMS**  
15 **UNIFORM FOR THOSE STATES THAT HAVE APPROVED GAS**  
16 **INFRASTRUCTURE COST-RECOVERY MECHANISMS?**

17 A. No. Approved gas infrastructure cost-recovery mechanisms differ on various items,  
18 including the types of recoverable costs; review provisions; their terms; and the inclusion  
19 or exclusion of investment limitations or rate impact caps, among other program  
20 components. For instance, in Massachusetts, a cost-recovery cap is set such that annual

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<sup>12</sup> MD Pub Util Code § 4-210 (2013).



1 changes in the revenue requirement eligible for recovery may not exceed 1.5 percent of the  
2 gas utility's total firm revenues, or an amount determined by the department that is greater  
3 than 1.5 percent.<sup>13</sup> In New Jersey, natural gas utility IIP Cost Recovery Mechanisms  
4 include a number of ratepayer protection mechanisms—such as, O&M offsets and  
5 expenditure caps,<sup>14</sup> and clear sunset provisions with rate case filing requirements.<sup>15</sup>

6 **Q. DO ANY OF THESE MECHANISMS INCLUDE PERFORMANCE**  
7 **REQUIREMENTS?**

8 A. Yes. In New Jersey, the IIPs approved for natural gas utilities include leak-reduction  
9 metrics that must be met. For instance, the IIP authorized for Elizabethtown Gas Company  
10 includes a requirement that the Company reduce its year-end open leak inventory by one  
11 percent for each year of its IIP.<sup>16</sup> Failure to meet this annual leak reduction target may

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<sup>13</sup> MASS. GEN. LAWS ch. 164, §145(f).

<sup>14</sup> *In the Matter of the Petition of New Jersey Natural Gas Company for Approval of the Safety Acceleration and Facility Enhancement Program Pursuant to N.J.S.A. 48:2-23, and for Approval of the Associated Recovery Mechanism Pursuant to N.J.S.A. 48:2-21 and N.J.S.A. 2-21.1*, 301 Pub. Util. Rep. 4<sup>th</sup> 519 (2012); *In the Matter of the Petition of South Jersey Gas Company to Implement an Accelerated Infrastructure Replacement Program and Associated Recovery Mechanism Pursuant to N.J.S.A. 48:2-21 and N.J.S.A. 48:2-21.1*, N.J. Bd. Reg. Comm. Docket No. GO12070670, 2013 WL 792420 (Feb. 20, 2013), 3; *In the Matter of the Petition of Pivotal Utility Holdings, Inc. (d/b/a Elizabethtown Gas) for Approval of an Accelerated Infrastructure Replacement Program and an Associated Cost Recovery Mechanism*, N.J. Bd. Reg. Comm. Docket No. GO12070693, 2013 WL 4855705 ¶ 18 (Aug. 21, 2013).

<sup>15</sup> *In the Matter of the Petition of New Jersey Natural Gas Company for Approval of the Safety Acceleration and Facility Enhancement Program Pursuant to N.J.S.A. 48:2-23, and for Approval of the Associated Recovery Mechanism Pursuant to N.J.S.A. 48:2-21 and N.J.S.A. 2-21.1*, 301 Pub. Util. Rep. 4<sup>th</sup> 519 (2012); *In the Matter of the Petition of South Jersey Gas Company to Implement an Accelerated Infrastructure Replacement Program and Associated Recovery Mechanism Pursuant to N.J.S.A. 48:2-21 and N.J.S.A. 48:2-21.1*, N.J. Bd. Reg. Comm. Docket No. GO12070670, 2013 WL 792420 (Feb. 20, 2013), 3; *In the Matter of the Petition of Pivotal Utility Holdings, Inc. (d/b/a Elizabethtown Gas) for Approval of an Accelerated Infrastructure Replacement Program and an Associated Cost Recovery Mechanism*, N.J. Bd. Reg. Comm. Docket No. GO12070693, 2013 WL 4855705 ¶ 20 (Aug. 21, 2013).

<sup>16</sup> *In the Matter of Elizabethtown Gas Company to Implement an Infrastructure Investment Program ("IIP") and Associated Recovery Mechanism Pursuant to N.J.S.A. 48:2-21 and N.J.S.A. 14:3-2A*, NJ Bd. Reg. Commission. Docket No. GR18101197, 2019 WL 2656050 ¶ 12 (June 12, 2019).

1 result in the Company forfeiting its cost recovery for expenses incurred under its IIP.<sup>17</sup> In  
2 New York, National Grid’s Leak Prone Pipe replacement program includes a performance  
3 metric in which the company receives a negative revenue adjustment of eight pre-tax basis  
4 points if it fails to reach annual replacement targets.<sup>18</sup>

5 **IV. OVERVIEW OF WGL’S PROPOSED STRUCTURE FOR PIPES 2 GAS**  
6 **PROGRAMS**

7 **A. *Company’s Initial PIPES 2 Proposal (December 7, 2018)***<sup>19</sup>

8 **Q. PLEASE DESCRIBE THE COMPANY’S INITIAL PROPOSED REPLACEMENT**  
9 **PROGRAMS FOR PIPES 2.**

10 A. The PIPES 1 Program included three Distribution Replacement Programs and no  
11 Transmission Replacement Programs. In contrast, a large number of changes have been  
12 proposed for PIPES 2. The Company’s initial *PIPES 2 Application* included thirteen  
13 separate Programs—eight were Distribution Programs, and the other five were  
14 Transmission Programs. The Company estimated the total cost for these Programs would  
15 amount to \$305.3 million.<sup>20</sup>

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<sup>17</sup> *Id.* ¶ 13.

<sup>18</sup> *Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of KeySpan Gas East Corporation (d/b/a National Grid for Gas Service)*, New York Pub. Svc. Comm., Case No. 16-G-0058 (Dec. 16, 2016).

<sup>19</sup> *Formal Case No. 1154*, Washington Gas’s *PIPES 2 Application 2*.

<sup>20</sup> *Id.* at 4.

1        **B.      *Company's Supplemental PIPES 2 Proposal (April 23, 2020)***<sup>21</sup>

2        **Q.      PLEASE DESCRIBE THE COMPANY'S SUPPLEMENTAL PROPOSED**  
3        **REPLACEMENT PROGRAMS FOR PIPES 2.**

4        A.      The Company's second (and current) proposal for restructuring the PIPES 2 replacement  
5        activities includes an increased number (ten) of Distribution Replacement Programs and  
6        the same five Transmission Programs proposed in its initial *PIPES 2 Application*. The  
7        budgets for individual Programs, as well as the total budget, have changed. The budget for  
8        these replacement Programs now totals \$374.0 million, an increase of almost \$70 million,  
9        which the Company acknowledges is a 177% increase.<sup>22</sup> The ten Distribution and five  
10       Transmission Programs and their individual budgets are shown in Exhibit OPC (2A)-3 of  
11       my testimony.

12       **C.      *Major Changes Between Proposed PIPES 2 Replacement Programs and***  
13       ***the PIPES 1 Replacement Program***

14       **Q.      PLEASE DESCRIBE THE COMPANY'S REPLACEMENT PROGRAMS IN**  
15       **PIPES 1.**

16       A.      In PIPES 1, there were only three approved replacement Programs, although the third  
17       Program, Program 4, is generally separated into two Programs for reporting purposes. All  
18       of these Programs were Distribution Replacement Programs. No Transmission  
19       Replacement Programs existed in PIPES 1. The Programs approved for PIPES 1 were:

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<sup>21</sup>       *Formal Case No. 1115; Formal Case No. 1142; Formal Case No. 1154; and Formal Case No. 1162, Washington Gas' Supplemental Direct.*

<sup>22</sup>       *Formal Case No. 1115; Formal Case No. 1142; Formal Case No. 1154 and Formal Case No. 1162, WGL (2A) (Jacas) 4; Formal Case No. 1154, Washington Gas Light Company's Response to OPC Data Request No. 7-3, included as Exhibit OPC (2A)-2, filed May 18, 2020.*

- 1 1. APRP 1 Non-Scattered (APRP-Basis) Bare and/or Unprotected Steel Services
- 2 2. APRP 2 Bare and Targeted Unprotected Steel Mains and Associated Services
- 3 3. APRP 4 (OPT) Cast Iron Mains and Associated Services Selected by Optimain, and
- 4 4. APRP 4 Cast Iron Mains and Associated Services Not Selected by Optimain

5 **Q. CAN YOU POINT OUT THE MAJOR CHANGES BETWEEN THE COMPANY'S**  
6 **PROPOSED REPLACEMENT PROGRAMS IN PIPES 2 AND THE EARLIER**  
7 **PIPES 1 PROGRAM?**

8 A. Yes. There have been five major changes proposed for PIPES 2 versus PIPES 1:

- 9 1. PIPES 1 contained a replacement Program (Program 4 (OPT)) that was targeted toward  
10 the replacement each year of the three most-risky pipe segments identified through the  
11 Company's licensed software program, Optimain. This replacement Program has been  
12 removed from the proposed PIPES 2 Plan.
- 13 2. The current PIPES 2 proposal includes five Transmission Programs whereas there were  
14 none in PIPES 1.
- 15 3. The current PIPES 2 proposal includes an "Advanced Leak Detection" Program  
16 (Distribution Program 9) aimed at improving the detection of leaks using newer  
17 techniques that are being tested and used by some other gas utilities.
- 18 4. The current PIPES 2 proposal includes a "Work Compelled by Others" Program (i.e.,  
19 Distribution Program 10), which is aimed at protecting Company piping facilities  
20 through replacement or relocation when they are endangered by nearby work of other  
21 entities, such as the District of Columbia Department of Transportation's ("DDOT")  
22 Advance of Pavement ("AOP") projects and the Potomac Electric Power Company's  
23 ("Pepco") DC PLUG and PEPCO GRID projects that intersect with the Company's  
24 facilities.
- 25 5. The budget has increased considerably for the proposed PIPES 2 plan. PIPES 1 had a  
26 budget of \$110.0 million for the five-year Program.<sup>23</sup> PIPES 2 has a proposed budget  
27 of \$374.0 million, an increase of \$264.0 million, or 240%.

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<sup>23</sup> *Formal Case No. 1154, Washington Gas' PIPES 2 Application, Attachment A 1.*

1 **V. SUMMARY OF ACCOMPLISHMENTS AND CONCERNS REGARDING**  
2 **PIPES 1**

3 **A. *Amount of Pipe Replacement Performed During PIPES 1***

4 **Q. CAN YOU SUMMARIZE THE AMOUNT OF PIPE REPLACED DURING THE**  
5 **FIVE YEARS OF THE PIPES 1 PROGRAM?**

6 A. Yes. Through September 30, 2019, the Company completed 17 miles of mains remediation  
7 and replaced 3,725 services.<sup>24</sup> These actual replacements fall far short of the estimates of  
8 replacements the Company put forth at the start of—and during—PIPES 1. During the  
9 first five years, the approved plan envisioned the replacement of approximately:

- 10 1. 8,000 bare steel and/or unprotected steel service-lines,
- 11 2. Ten (10) miles of bare steel main,
- 12 3. Eight (8) miles of wrapped but unprotected steel main, and
- 13 4. Twenty (20) miles of low- and medium-pressure cast-iron main.<sup>25</sup>

14 Actual PIPES 1 replacements are compared to the initial estimates for replacements at the  
15 start of PIPES 1 in Exhibit OPC (2A)-5. This exhibit indicates that actual replacements of  
16 mains were only about 45% of initial replacement expectations, and actual replacements  
17 of services were only about 47% of initial replacement expectations. Thus, the Company  
18 replaced slightly less than half of the units originally planned.

19 **Q. CAN YOU CITE THE REASONS FOR THIS SHORTFALL?**

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<sup>24</sup> *Formal Case No. 1115*, Washington Gas’s Response to OPC Data Request No. 9-10 (Attachment 01), included as Exhibit OPC (2A)-4, filed March 19, 2020.

<sup>25</sup> *Formal Case No. 1115*, Washington Gas Light Company’s Customer Education Plan, 2017 Annual Report 3, filed December 15, 2017 (“2017 CEP Report”).

1 A. Yes. The Final Management Audit Report filed with the Commission by the Liberty  
2 Consulting Group on April 19, 2019 in Formal Case No. 1115 attributes the difference  
3 between the preliminary estimates and the actual performance primarily to bad (low) initial  
4 pipe replacement cost estimates, which had also not been inflated for each year of PIPES  
5 1.<sup>26</sup>

6 The Management Audit Report also noted poor program management in Years 1 and 2.  
7 The Management Audit Report states as follows: “We did not find during Years 1 and 2 a  
8 sufficient program management concept, structure, staffing, methods, activities and  
9 controls fully commensurate with the requirements imposed by WGL’s pipe replacement  
10 program”<sup>27</sup> and “[t]he Years 1 and 2 weaknesses in program management were  
11 consequential, raising the question of their impact on what proved to be very low rates of  
12 work completion. Those low rates occurred despite expenditures of close to the full annual  
13 \$20 million qualifying accelerated rate treatment.”<sup>28</sup>

14 ***B. Hazardous Leak Performance***

15 **Q. WHAT HAS BEEN THE COMPANY’S PERFORMANCE ON LEAKS TO DATE?**

16 A. Even after PIPES 1, the Company still has an increasing number of leaks on its system,  
17 particularly hazardous leaks. Gas companies classify all leaks on their gas pipeline systems  
18 by grade level. Generally, hazardous leaks are classified as Grade 1 leaks. These leaks are

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<sup>26</sup> *Formal Case No. 1115*, The Liberty Consulting Group’s Final Report Management Audit of PROJECTpipes 6-7 and 62-63, filed April 19, 2019 (“Management Audit Report” or “Liberty Report”).

<sup>27</sup> *Id.* at 4.

<sup>28</sup> *Id.*

1 so serious that the company representative that checks the reported leak for severity and  
2 classification is generally required to stay on site until the leak has been repaired. Grade 2  
3 and Grade 3 leaks are less-serious leaks, requiring only repair or rechecking over future  
4 time periods. In addition to being the most dangerous (due to their size and location),  
5 Grade 1 hazardous leaks also generally emit larger amounts of methane, a potent  
6 greenhouse gas.

7 **Q. CAN YOU EXPLAIN WHY THE NUMBER OF LEAKS IS STILL RISING?**

8 A. Yes. The Company has only replaced a relatively small amount of piping compared to the  
9 total amount of piping remaining to be replaced. The piping that still remains to be replaced  
10 continues to deteriorate. This causes additional leaks, which to date have overwhelmed  
11 any reduction in leaks on the replaced pipes. The number of hazardous leaks on both mains  
12 and services on the Company's system is shown in Exhibit OPC (2A)-6. This exhibit  
13 shows that the number of hazardous leaks repaired by the Company for each year from  
14 2012 through 2019 is still increasing. Having said that, WGL's underperformance during  
15 PIPES 1 is directly responsible as well. If the actual number of PIPES 1 replacements had  
16 been closer to the Company's initial estimates, the increased replacements would have led  
17 to a smaller number of leaks.

18 **C. *Management Audit Report Regarding Performance***

19 **Q. DO YOU AGREE WITH THE COMPANY'S SUMMARY OF THE**  
20 **MANAGEMENT AUDIT REPORT?**

21 A. No.

22 **Q. PLEASE EXPLAIN.**

1 A. WGL Witness Jacas testifies as follows: “Overall, this independent management audit  
2 indicates that the Company has successfully managed PROJECTpipes.”<sup>29</sup> However, the  
3 Management Audit Report summarizes several areas of deficiency and needed  
4 improvement and makes recommendations which indicate the Company has not  
5 successfully managed PROJECTpipes.

6 **Q. PLEASE PROVIDE SOME OF THE OVERALL DEFICIENCIES NOTED IN THE**  
7 **MANAGEMENT AUDIT REPORT.**

8 A. The Management Audit Report period for PROJECTpipes covered Year 1 (June 1, 2014 -  
9 September 30, 2015) through part of Year 4 (June 30, 2018). Contrary to WGL Witness  
10 Jacas’ testimony, when taken in its entirety, the Management Audit Report provides  
11 substantial evidence of major problems in multiple areas of the PROJECTpipes Program.  
12 For example, the Management Audit Report finds that:

13 [M]anagement needs to continue work in a number of organizational,  
14 staffing, methods, and activities to turn program management into a  
15 strength.<sup>30</sup>

16 Progress, measured by work units accomplished or by the costs of those  
17 accomplishments, has fallen well short of expectations across the first four  
18 years of PROJECTpipes.<sup>31</sup>

19

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<sup>29</sup> Formal Case No. 1115; Formal Case No. 1142; Formal Case No. 1154; and Formal Case No. 1162, WG (2A) (Jacas) 17:13-14.

<sup>30</sup> Formal Case No. 1115, Management Audit Report 4.

<sup>31</sup> *Id.* at 6.



1 [F]or the dollars spent, management accomplished roughly half of the  
2 amount of work anticipated at program outset.<sup>32</sup>

3 The history of performance to date makes clear that the assumptions  
4 underlying PROJECT*pipes* no longer have validity as a planning basis.  
5 Total PROJECT*pipes* costs and schedule duration have vastly exceeded the  
6 expectations underlying the first five-year window, and will certainly  
7 continue to do so under program continuation.<sup>33</sup>

8 Project expenditures have run at anticipated annual rates, but high-risk pipe  
9 removal has proceeded much slower. Many projects remain in progress as  
10 project years come and go. We believe it has therefore become appropriate  
11 to consider the establishment of a performance condition to qualification of  
12 expenditures for accelerated recovery.<sup>34</sup>

13 The Management Audit Report also finds that if the Program were to continue in its current  
14 form and scope, future Program costs would amount to almost double initial expectations.<sup>35</sup>

15 In addition, the Management Audit Report concludes that WGL was focused more on  
16 spending than performance, as indicated by the following findings regarding the  
17 Company's lack of cost management:

18 WGL management considered approaching annual expenditures of \$20  
19 million as the most central aspect of cost reporting. The reports we saw  
20 focused on spending levels, and did not address costs as performance  
21 indicators. Employee goals related also addressed only spending. The high-  
22 level oversight provided by the Operating Committee also addressed only  
23 spending.  
24

25 *Formal Case No. 1115*, Management Audit Report 78. The Commission has been equally  
26 critical of the Company's PIPES 1 performance:

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<sup>32</sup> *Id.*

<sup>33</sup> *Id.*

<sup>34</sup> *Id.* at 40.

<sup>35</sup> *Id.*

1 Even with some noted improvements in Years 3 and 4, WGL’s performance  
2 fell short of expectations.<sup>36</sup>  
3

4 [T]he Commission remains concerned, based on the Liberty Final Audit  
5 Report, that overall performance in PIPES 1 Plan could have been better  
6 managed in multiple areas from risk ranking and prioritization to resource  
7 planning and costs management. The Commission agrees with OPC that  
8 robust measures need to be taken to increase accountability and control over  
9 both the PIPES 1 Plan and the PIPES 2 Plan.<sup>37</sup>  
10

11 The Commission believes that before proceeding to the PIPES 2 Plan, it is  
12 more appropriate that every aspect of PROJECTpipes be carefully  
13 examined by stakeholders to determine what necessary enhancements are  
14 needed to ensure greater accountability.<sup>38</sup>  
15

16 The Program changes proposed in WGL’s *PIPES 2 Application*, however, fundamentally  
17 and unreasonably expand the focus and objective of the Program and appear to contravene  
18 some prescriptions set forth in the Commission’s Orders authorizing PROJECTpipes, as  
19 discussed below.

20 **Q. DO YOU TAKE ISSUE WITH THE COMPANY’S IMPLEMENTATION OF**  
21 **SPECIFIC AUDIT REPORT RECOMMENDATIONS?**

22 A. Yes. I discuss specific issues with the Company’s implementation of the Liberty  
23 Management Audit Report later in my testimony. Overall, while the Company’s PIPES 2  
24 proposals include an expansion of Program projects (especially Distribution Projects 9 and  
25 10 and Transmission Projects 1-5) and higher increased estimated costs, there appears to  
26 be little commitment from the Company to improve some of the substantial program

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<sup>36</sup> *Formal Case No. 1154*, Order No. 20213, ¶ 18, rel. September 5, 2019 (“Order No. 20213”).

<sup>37</sup> *Id.*

<sup>38</sup> *Id.*

1 management shortfalls identified in the Management Audit Report, particularly in the areas  
2 of Program Planning, Cost Estimating, Program Oversight, and Field Execution.  
3 Specifically, my testimony takes issue with the Company's implementation, or lack  
4 thereof, of the following recommendations from the Liberty Management Audit Report:

- 5 • Conversion to digital mapping;
- 6 • Elimination of Distribution Program 1;
- 7 • Elimination of the Optimain top-3 component of cast-iron replacements; and
- 8 • Establishment of a performance condition for qualification of expenditures for  
9 accelerated recovery.

10 **Q. HAS OPC MADE RECOMMENDATIONS BASED ON THE MANAGEMENT**  
11 **AUDIT REPORT?**

12 A. Yes. In *OPC's Audit Report Comments*, the Office requested that the Commission adopt  
13 the following recommendations:<sup>39</sup>

- 14 • WGL should be directed to realistically assess its planning abilities and engage the  
15 stakeholders in a meaningful discussion in the *PROJECTpipes 2* proceeding regarding a  
16 workable, cost-effective way to accomplish the needed accelerated projects;
- 17 • The Commission should reject Liberty's two primary recommendations regarding  
18 replacements and prioritization, which were the elimination of both the Program 1 service  
19 replacements and the Optimain top-3 component;
- 20 • The Company needs to be mindful of safety issues in the uprating of its system from low-  
21 to medium pressure;
- 22 • WGL should be required to provide cost figures for uprating activities so that accurate  
23 Program and replacement decisions can be made in relation to uprating;

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<sup>39</sup> *Formal Case No. 1115*, Initial Comments of the Office of the People's Counsel for the District of Columbia Regarding the Liberty Consulting Group's Management Audit Report 4-6, filed August 8, 2019 ("*OPC's Audit Report Comments*").

- 1 • The Commission should adopt Liberty's recommendation that a formal process be  
2 undertaken in order to address the significant cost-estimate variances, which may include  
3 a Technical Conference. OPC welcomes the opportunity to engage in such a discussion  
4 with WGL and other stakeholders to address these variances and find the proper method to  
5 estimate costs on a project level;
- 6 • WGL should reexamine the way it builds its project lists so they reflect actual projects to  
7 be completed in the Program period;
- 8 • In an effort to make cost performance more structured, WGL should employ qualified cost  
9 analysts or cost engineers to undergo analyses of major cost drivers, identification of root  
10 causes, and appropriate corrective actions. WGL should also be directed to undergo routine  
11 actual versus planned unit costs and track and analyze performance variance in this regard;
- 12 • To ensure the District is treated equitably in project management, WGL should be required  
13 to assign direct responsibility to certain members of the planning and management teams  
14 for management and oversight of District projects;
- 15 • WGL needs to create and document processes for creating a Program master schedule,  
16 assigning accountability for schedule performance, providing for ongoing analysis of  
17 schedule variances, and developing means to control them. WGL should also develop an  
18 organizational structure and discipline, supported by strong skills and capabilities, to  
19 perform accurate, insightful scheduling and analysis of project and Program schedule  
20 performance. WGL should be directed to report to the Commission to show it has  
21 implemented these internal changes;
- 22 • In light of the concerns over future increases and availability of resources for the Program  
23 and the high unit rates WGL has experienced using solely external crew resources, WGL  
24 should be directed to analyze the development of a Company-wide resource planning  
25 model to evaluate the internal/external resource mix necessary to undertake the 40-year-  
26 long PROJECT*pipes* Program. Further, any possible planned increase in internal resources  
27 and needs to staff that pool should include a commitment to the District of Columbia  
28 Infrastructure Academy to create a pipeline of candidates to train for career-length  
29 positions in utility infrastructure if there will be a resulting cost savings to the Program by  
30 doing so;
- 31 • WGL's top leadership should hold Program management accountable for rapid deployment  
32 of reporting and analysis, and require insightful analysis of data, rather than a mere  
33 presentation, to serve as a basis for meaningful discussion of successes, failures, and  
34 opportunities regularly. The Company needs to effectively communicate Program progress  
35 to upper-level directors and executives to ensure they are cognizant of Program  
36 performance and underlying issues or constraints which may require corrective action;
- 37 • WGL should conduct and submit to the Commission on a regular basis an annual internal  
38 audit that focuses on performance data and main replacement;

- 1       • WGL should continue working with District authorities to develop flexible working hours  
2       and conditions to address recent regulation-related constrained working hours, including  
3       reasonable contingencies for unforeseen circumstances; and
- 4       • OPC urges WGL to continue its commitment to reduce Grade 2 leaks in line with the  
5       PHMSA standard.

6 **Q. IS THE COMPANY HEEDING ALL OF THE RECOMMENDATIONS OF THE**  
7 **MANAGEMENT AUDIT REPORT?**

8 A. No. Liberty’s Management Audit focused on multiple areas—including, Risk Ranking and  
9       Project Prioritization, Program Management, Summary of Performance, Project  
10       Authorization, Program Planning, Cost Estimating, Cost Management, Scheduling,  
11       Resource Planning, Program Oversight, and Field Execution. Through its Management  
12       Audit, Liberty made a number of findings and recommendations regarding WGL’s  
13       PROJECT*pipes* Program. The Company’s Supplemental PIPES 2 Proposal<sup>40</sup> that was filed  
14       in April 2020, a full year after the Management Audit Report was completed, did not  
15       incorporate all of Liberty’s recommendations.

16 **Q. COMPANY WITNESS JACAS TESTIFIES THAT “THE COMPANY HAS**  
17 **IMPLEMENTED, OR IS IN THE PROCESS OF IMPLEMENTING, MEASURES**  
18 **CONSISTENT WITH THE MANAGEMENT AUDIT RECOMMENDATIONS.”<sup>41</sup>**  
19 **DO YOU AGREE?**

20 A. No.

21 **Q. WHY NOT?**

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<sup>40</sup> *Formal Case No. 1115; Formal Case No. 1142; Formal Case No. 1154; and Formal Case No. 1162, Washington Gas’ Supplemental Direct.*

<sup>41</sup> *Id.* at 17:20 – 18:2.

1 A. Mr. Jacas' testimony and his attached Exhibit WG (2A)-2 (Jacas), represent that the  
2 Company is in the process of implementing the Management Audit Report  
3 recommendations. However, the Company has not provided documentation regarding  
4 such implementation in some respects, and, in others, it seems the Company's goal of  
5 implementing recommendations has not been achieved.

6 **Q. CAN YOU PROVIDE AN EXAMPLE?**

7 A. Yes. One example is the Program Implementation Plan ("PIP"), which, again, is referenced  
8 in Jacas Exhibit WG (2A)-2 (Jacas). The PIP is expected to provide updated information  
9 on the Company's Construction Program Strategy and Management ("CPSM")  
10 Department, which the Company and Liberty's Management Audit Report each rely upon  
11 as evidence of improvements in Program management. However, the Company has  
12 delayed completing the PIP and filing it with the Commission. The PIP was previously  
13 expected in March 2020.<sup>42</sup> In its Exhibit WG (2A)-2 (Jacas), the Company states that it  
14 will file the updated PIP by May 29, 2020, and that if it is unable to do so WGL will instead  
15 file with the Commission (1) a progress report regarding the impending completion of the  
16 PIP; and (2) any outstanding documents and PIP details by no later than July 1, 2020.<sup>43</sup> In  
17 its progress report filed in this proceeding on May 29, 2020, the Company states that it  
18 expects to file the PIP by July 1, 2020.

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<sup>42</sup> See *Formal Case No. 1154*, Washington Gas Light Company's Response to OPC Data Request No. 7-44, included as Exhibit OPC (2A)-7.

<sup>43</sup> *Formal Case No. 1115; Formal Case No. 1142; Formal Case No. 1154; and Formal Case No. 1162*, WG (2A)-2 (Jacas) 2.

1 **Q. CAN YOU PROVIDE ANOTHER EXAMPLE OF A RECOMMENDATION THAT**  
2 **WAS NOT IMPLEMENTED?**

3 A. Yes. Modern utility asset management practices include the use of digital mapping  
4 systems. WGL, however, has made little progress in this area. The Management Audit  
5 Report found that “[m]anagement continues to use paper maps for construction work and  
6 notes via ‘red lines’ any deviation from the original plan or scope of each project”<sup>44</sup> and  
7 recommends the Company “[c]onduct a structured, quantitative evaluation of converting  
8 to digital GPS mapping.”<sup>45</sup> Paper maps can be unreliable for several reasons—including,  
9 inaccurate initial mapping, changing coordinates, and potential damage and destruction.  
10 On the other hand, when combined with traditional surveying, clear and precise digital  
11 mapping has proven valuable for asset management, system design, and engineering  
12 analysis. Even where the Company properly locates abandoned facilities neither marked  
13 nor identified on maps,<sup>46</sup> tagging these unknown facilities with GPS markers can help  
14 reduce redundant location efforts and avoid future third-party damage. While the Company  
15 asserts that it “continues to participate in industry led dialogue and teams focused on tracking  
16 the development and pilot deployment of these technologies”<sup>47</sup> it has yet to produce tangible  
17 results. I recommend that the Company provide the recommended quantitative analysis.

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<sup>44</sup> *Formal Case No. 1115*, Management Audit Report 131.

<sup>45</sup> *Id.* at 133.

<sup>46</sup> *Id.* at 130.

<sup>47</sup> *See Formal Case No. 1154*, Washington Gas Light Company’s Response to OPC Data Request No. 7-12, included as Exhibit OPC (2A)-8.

1 **Q. ARE THERE OTHER ASPECTS OF THE LIBERTY MANAGEMENT AUDIT**  
2 **REPORT WHICH HAVE NOT BEEN FOLLOWED BY THE COMPANY?**

3 A. Yes. I have reviewed the Company's Exhibit WG (2A)-2 (Jacas), which purports to  
4 demonstrate the Company's implementation of the Liberty Management Audit Report  
5 recommendations, as well as the Company's responses to discovery requests propounded  
6 to it in this proceeding. Based on the information provided by the Company, below is a  
7 list of Management Audit Report recommendations which the Company either has not  
8 implemented, has failed to provide sufficient detail to demonstrate implementation or an  
9 intention to do so, or has no readily apparent intention of implementing.

10 1. *Recommendation 3: Continue to account for pressure differences*  
11 *that result when replacements produce pressure increase in only*  
12 *part of contiguous areas or neighborhoods.*

13 First, I note that while Exhibit WG (2A)-2 (Jacas) and the Management Audit Report  
14 summary recommendation state that the Company should "continue to account for pressure  
15 differences", the Liberty Report states that the Company should "*ensure* full accounting  
16 for pressure differences that result when replacements produce pressure increases in only  
17 part of contiguous areas or neighborhoods."<sup>48</sup> As Liberty explained:

18 [Although the m]anagement correctly tests the ability of all new mains to  
19 handle future operation at medium pressure . . . the challenge lies in meeting  
20 the requirement that very accurate and current records exist to ensure proper  
21 marking of areas that have undergone replacement, but remain at low  
22 pressure, in order to permit correct setting of pressure reduction devices.  
23 The danger here cannot be overstated, as exemplified by the explosion in  
24 Massachusetts which resulted from supply at the wrong pressure to a low-  
25 pressure system.  
26

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<sup>48</sup> Formal Case No. 1115, Management Audit Report 23 (emphasis added).



1        *Formal Case No. 1115*, Management Audit Report 23. The Management Audit Report  
2        concluded that “[k]nowing exact supply pressure is critical for safe operation” and that  
3        “[i]mplementation of a GIS system and GPS on main installations could help in making  
4        the system pressure at every location more apparent.”<sup>49</sup> On this critical safety issue, the  
5        Company summarily states in its Supplemental Direct submission that it (1) “is mindful of  
6        safety issues in the uprating of its system . . . and has long-established procedures in place  
7        outlining the requirements for planning and implementing the uprating of existing main”;  
8        (2) has implemented an internal task force and made additional enhancements; and (3) has  
9        proposed Programs 7 and 8 in PIPES 2.<sup>50</sup> This explanation by the Company does not  
10       provide sufficient detail to, at the very least, satisfy the requirement in Order No. 20313  
11       that it specify “which audit recommendations the Company has adopted, the date it adopted  
12       those recommendations, and how it has implemented them”,<sup>51</sup> much less the specificity of  
13       responding to the Management Audit Report regarding implementation of a GIS system  
14       and GPS on main installations.

15       In order to ascertain whether the Company has implemented this Management Audit  
16       Report recommendation, OPC requested information in discovery. The discovery was  
17       conducted prior to the issuance of Order No. 20313 in this proceeding and in advance of  
18       the Company’s Supplemental Direct Testimony. In its discovery response, the Company

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<sup>49</sup>        *Id.* at 24.

<sup>50</sup>        *Formal Case No. 1115; Formal Case No. 1142; Formal Case No. 1154; and Formal Case No. 1162*, WG (2A)-2 (Jacas) 1-2.

<sup>51</sup>        *Formal Case No. 1115*, Order No. 20313, ¶ 25.

1 provided more information regarding implementation than it provided in Exhibit WG (2A)-  
2 2 (Jacas).<sup>52</sup> It is unclear why the Company did not provide a comparable level of detail in  
3 response to the Commission's directive in Order No. 20313, but its implementation of the  
4 Management Audit Report recommendation is uncertain.

5 2. *Recommendation 4: Enhance efforts already underway to provide*  
6 *a full and accurate identification of the types and materials*  
7 *employed in underground infrastructure.*

8 The importance of this issue is reflected in Liberty's conclusion that there was a net  
9 increase in the number of at-risk services and "a substantial increase in the number of at-  
10 risk services or mains makes program costs and dates even more unrealistic, and indicates  
11 a greater than expected level of risk overall in the system."<sup>53</sup> Here again, the Company's  
12 Exhibit WG (2A)-2 (Jacas) provides a summary response regarding existing efforts, and a  
13 statement that it "will continue its records correction initiatives and to enhance its GIS  
14 system to better inform the iterative risk-based decision-making process."<sup>54</sup> There is no  
15 specificity regarding how, or when, these ongoing efforts will adequately address "the need  
16 to continue aggressive efforts to identify all failing materials and their locations."<sup>55</sup> In a  
17 discovery response which predated Order No. 20313, the Company provided information

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<sup>52</sup> *Formal Case No. 1154*, Washington Gas Light Company's Response to OPC Data Request No. 6-2, included as Exhibit OPC (2A)-9, filed November 1, 2019.

<sup>53</sup> *Formal Case No. 1115*, Management Audit Report 24.

<sup>54</sup> *Formal Case No. 1115; Formal Case No. 1142; Formal Case No. 1154; and Formal Case No. 1162*, WG (2A)-2 (Jacas) 2.

<sup>55</sup> *Formal Case No. 1115*, Management Audit Report 24.

1 regarding implementation of practices related to this recommendation.<sup>56</sup> Several of the  
2 practices predate the Management Audit Report, which indicates that the Management  
3 Audit Report may have taken these practices into account in recommending further efforts.  
4 This information is missing from the Company's Exhibit WG (2A)-2 (Jacas), so the status  
5 of the Company's implementation of this recommendation is unclear.

6 3. *Recommendation 5: Promptly complete the described program*  
7 *management measures now underway.*

8 In its Exhibit WG (2A)-2 (Jacas), the Company has listed several enhancement measures  
9 as well as the dates when those measures were or will be implemented.<sup>57</sup> The Management  
10 Audit Report, however, lists different items in this recommendation. The subject matter of  
11 each of those items is provided below:

- 12 • Integrated schedules;
- 13 • Monthly Program status reports;
- 14 • Measures that relate production to costs;
- 15 • Insightful analysis that leads to corrective actions; and
- 16 • Overall Program Plan, which includes the need for management to complete an  
17 update to the PIP.

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<sup>56</sup> *Formal Case No. 1154, Washington Gas Light Company's Response to OPC Data Request No. 6-3, included as Exhibit OPC (2A)-10.*

<sup>57</sup> *Formal Case No. 1115; Formal Case No. 1142; Formal Case No. 1154; and Formal Case No. 1162, WG (2A)-2 (Jacas) 2.*

1 I discussed the delay in the PIP already in my testimony. The Company presumably  
2 believes that the enhancement measures identified in its Exhibit WG (2A)-2 (Jacas) satisfy  
3 the above-listed items. However, there is no description from the Company as to how.  
4 Additional information was provided by the Company in response to discovery.<sup>58</sup> Because  
5 WGL's responses predated the issuance of Order No. 20313 and the submission of the  
6 Company's Supplemental Direct Testimony, that information could have been provided in  
7 the Company's Supplemental Direct Testimony; however, it was not. It is unclear the  
8 extent to which the information provided in discovery is accurate, is compliant with the  
9 recommendations in the Management Audit Report, is neither, or is both. I do note that  
10 the discovery response states, in relevant part, that the Company "will not utilize an  
11 integrated schedule"<sup>59</sup>—which means it has not implemented this Audit Report  
12 Recommendation.

13 4. *Recommendation 6: Conduct skills assessments and development*  
14 *plans to further the project management skills and capabilities*  
15 *enhancement now underway.*

16 With respect to this recommendation, the Management Audit Report states, "the specific  
17 needs include: assessment of program management skills of each manager and supervisor  
18 in key positions" and "establishment of individual training plans to address skills  
19 enhancement of those managers and supervisors."<sup>60</sup> In its Exhibit WG (2A)-2 (Jacas), the

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<sup>58</sup> *Formal Case No. 1154*, Washington Gas Light Company's Response to OPC Data Request No. 6-8, included as Exhibit OPC (2A)-11.

<sup>59</sup> *Id.*

<sup>60</sup> *Formal Case No. 1115*, Management Audit Report 38.

1 Company discusses the hiring of a new manager and one employee dedicated to  
2 PROJECTpipes, to routine skills assessments, to the development of plans to enhance  
3 project management capabilities “as a routine course of business, including providing  
4 training opportunities to the positions annually”, and to a Project Management Professional  
5 certification class.<sup>61</sup> In order to comply with this recommendation and the Commission’s  
6 requirement to specify “which audit recommendations the Company has adopted, the date  
7 it adopted those recommendations, and how it has implemented them”,<sup>62</sup> the Company  
8 needs to confirm that it has or will undertake “program management skills of *each manager*  
9 *and supervisor in key positions*” and that it has established “*individual training plans to*  
10 *address skills enhancement of those managers and supervisors.*”<sup>63</sup>

11 5. *Recommendation 7: Incorporate routine measurement of Actual*  
12 *versus Planned Unit Costs as part of ongoing performance*  
13 *measurement, and, as it continues to examine performance*  
14 *variances, identify, report on, and analyze other metrics material*  
15 *to ensuring continuing program success.*

16 The Management Audit Report recommends that “management needs to supplement its  
17 tracking and analysis of performance metrics by continually measuring and analyzing the  
18 trends in actual unit costs across a variety of performance units and elements and variances  
19 between and actual and planned unit costs.”<sup>64</sup> The Management Audit Report also  
20 provided an Appendix which showed “mock-ups illustrating the concept, bases, and

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<sup>61</sup> *Formal Case No. 1115; Formal Case No. 1142; Formal Case No. 1154; and Formal Case No. 1162, WG (2A)-2 (Jacas) 3.*

<sup>62</sup> *Formal Case No. 1115, Order No. 20313, ¶ 25.*

<sup>63</sup> *Formal Case No. 1115, Management Audit Report 38 (emphasis added).*

<sup>64</sup> *Formal Case No. 1115, Management Audit Report 39.*

1 assumptions, and provides examples of the metrics at the summary and detailed levels,  
2 using some WGL data.”<sup>65</sup> In its Supplemental Direct Testimony, the Company explains  
3 the monthly dashboard developed by its CPSM department, which will “capture and  
4 communicate” metrics to departments in order to improve program performance.<sup>66</sup> This  
5 information might be sufficient to meet the recommendation. However, given past failures  
6 regarding actual versus planned performance based on dollars and units completed, it will  
7 be important for this information to be provided to the Commission and interested parties.  
8 The Company states that it will file a report semi-annually, “each August 31 throughout  
9 [the] PROJECTpipes 2 Plan if the project year is equivalent to a calendar year still.”  
10 Because “each August 31” is not “semi-annually”, OPC sought clarification through  
11 discovery. The Company responded that the annual August 31 report would cover the  
12 annual period January through June.<sup>67</sup> I recommend that the Company provide the metrics  
13 report twice each year, to cover both the period January through June as well as the period  
14 July through December.

15 6. *Recommendation 8: Complete measures underway to increase*  
16 *focus on D.C.-specific performance*

17 The Company’s response regarding this item in its Supplemental Direct Testimony  
18 references the PIP, which is now expected to be completed by July 1, 2020.<sup>68</sup> This does

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<sup>65</sup> *Id.*

<sup>66</sup> *Formal Case No. 1115; Formal Case No. 1142; Formal Case No. 1154; and Formal Case No. 1162, WG (2A)-2 (Jacas) 3.*

<sup>67</sup> *Formal Case No. 1154, Washington Gas Light Company’s Response to OPC Data Request No. 7-46, included as Exhibit OPC (2A)-12.*

<sup>68</sup> *Formal Case No. 1115; Formal Case No. 1142; Formal Case No. 1154; and Formal Case No. 1162, WG*

1 not specifically address the Management Audit Report recommendation that the Company  
2 complete measures underway, including “management plans for the executive summary  
3 section of the Monthly ARP Executive Dashboards to provide more narrative addressing  
4 positive and negative performance elements, trends that may suggest emergent problems,  
5 analysis of the causes of negative performance indicators, plans for addressing them, and  
6 monitoring of the effectiveness of changes to address performance issues.”<sup>69</sup> The  
7 Company should be directed to complete these measures and commit to a completion date.  
8 Further, in a discovery response regarding this recommendation, the Company stated that  
9 it “is committing, in response to the Audit, to an annual update either in the form of an  
10 Executive Report or Technical Conference, after the end of each plan year, to update the  
11 parties on what the Company has observed with course corrections and strategic issues the  
12 Company faced and how these issues were addressed.”<sup>70</sup> The Commission should direct  
13 the Company to adopt this annual update as part of the outcome of this proceeding.

14 7. *Recommendation 9: Re-define “normal” replacement in light of*  
15 *experience and current infrastructure and risks and evaluate the*  
16 *institution of a work completion condition to expedited recovery of*  
17 *program expenditures.*

18 The Management Audit Report includes two recommendations here. First, the Report  
19 concludes and recommends as follows:

20 Four program years have passed with replacement of far less high-risk  
21 mains and services than expected. At the same time, the remainder of the

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(2A)-2 (Jacas) 3.

<sup>69</sup> *Formal Case No. 1115*, Management Audit Report 39.

<sup>70</sup> *Formal Case No. 1154*, Washington Gas Light Company’s Response to OPC Data Request No. 6-11, included as Exhibit OPC (2A)-13.

1 system continues to age, as knowledge of its condition and risks continues  
2 to be monitored and as other drivers of customer rates and their  
3 ‘affordability’ evolve. What constitutes ‘normal’ would appear to require  
4 re-examination and clear definition under these circumstances. A related  
5 question becomes how, given consideration of the critical consideration of  
6 affordability, annual expenditures beyond ‘normal’ should be sized and  
7 directed. These questions should undergo dialogue based on a completely  
8 new and revised program estimate to completion.  
9

10 *Formal Case No. 1115*, Management Audit Report 40. Second, with respect to a  
11 performance condition to accelerate cost recovery, the Management Audit Report  
12 concludes that it has “become appropriate to consider the establishment of a performance  
13 condition to qualification of expenditures for accelerated recovery.”<sup>71</sup> I address this second  
14 recommendation later in my testimony. With respect to the first, the Company does not  
15 specifically address the questions identified above nor the recommendation for a  
16 “completely new and revised program estimate to completion.”<sup>72</sup> This recommendation  
17 should not go unaddressed by the Company.

18 8. *Recommendation 13: Evaluate elimination of Class 3 Cost*  
19 *Estimate requirements on smaller projects, to exclude most of*  
20 *Program 1 projects and those in the other two Programs with*  
21 *comparatively very low costs and standard execution*  
22 *requirements.*

23 The Company’s response in Exhibit WG (2A)-2 (Jacas) seems to address the Management  
24 Audit Report, except the Report recommends “WGL should *promptly* develop a specific  
25 proposal, with objective dimensions separating projects proposed to be excluded from  
26 Class 3 cost estimates” and “the proposal should describe estimating and cost control

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<sup>71</sup> *Id.*

<sup>72</sup> *Id.*



1 measures applicable to the excluded projects.”<sup>73</sup> However, the Company inexplicably  
2 intends to delay filing the results of the Class 3 estimates with the Commission until April,  
3 2021. My understanding is that the Commission will likely have issued its Order on the  
4 *PIPES2 Application* by then.

5 9. *Recommendation 14: Enhance the provision of insightful analysis*  
6 *of cost performance issues and provide cost management support*  
7 *to the program.*

8 The Management Audit Report identifies two needs: (1) cost performance analysis; and (2)  
9 cost management expertise.<sup>74</sup> The Company’s response in its Exhibit WG (2A)-2 (Jacas)  
10 appears to address the former need, although I note, again, that the Company relies on the  
11 updated PIP, which has yet to be provided. Also, as discussed above with respect to  
12 Recommendation 7, the Company states that it will report semi-annually, no later than  
13 August 31<sup>st</sup>, if the project year is equivalent to a calendar year.<sup>75</sup> The Company should be  
14 required to report on this item twice per year.

15 With respect to the need for cost-management expertise, the Management Audit Report  
16 recommends “support to functional and program managers in the form of cost professionals  
17 and systems by assigning qualified cost analysts or engineers.”<sup>76</sup> The Company does not  
18 address this recommendation in its Exhibit WG (2A)-2 (Jacas). However, in discovery,  
19 the Company states that it “will discuss and consider additional cost analysts and cost

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<sup>73</sup> *Formal Case No. 1115*, Management Audit Report 69 (emphasis added).

<sup>74</sup> *Id.* at 85.

<sup>75</sup> *Formal Case No. 1115; Formal Case No. 1142; Formal Case No. 1154; and Formal Case No. 1162*, WG (2A)-2 (Jacas) 5.

<sup>76</sup> *Formal Case No. 1115*, Management Audit Report 85.

1 engineers to the extent these costs are recovered through the PROJECTpipes surcharge,  
2 consistent with existing resources in engineering and construction planning and oversight  
3 dedicated to PROJECTpipes.”<sup>77</sup>

4 10. *Recommendation 15: Promptly complete development of a process*  
5 *for regularly measuring planned and actual expenditures to*  
6 *production for terms of mains and services.*

7 The Management Audit Report recommends as follows:

8 Going forward, management should at least twice each year project final  
9 costs (five-year window and through-program-end) starting with current  
10 unit costs escalated. This exercise will offer meaningful answers to: · What  
11 will not get done after spending the \$110 million (the cost of addressing  
12 Uninstalled Quantities from the plan)? · What are the cost impacts of the  
13 carryover (Sum of Unmitigated Cost Variances)? · How to design an annual  
14 expenditure pace that, for the future, will provide an acceptable yet  
15 affordable pace of remediation?  
16

17 *Formal Case No. 1115*, Management Audit Report 85-86. In its response to this  
18 recommendation, WGL relies on its CPSM. However, in discovery, the Company  
19 provided more information. Among other things, the Company states that it “is evaluating  
20 forecasting techniques to track PROJECTpipes expenditures on a project and program  
21 level.”<sup>78</sup> As part of this proceeding, the Company should be required to either report on  
22 the forecasting techniques it has identified or provide a progress report on those efforts by  
23 a date certain.  
24

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<sup>77</sup> *Formal Case No. 1154*, Washington Gas Light Company’s Response to OPC Data Request No. 6-16, included as Exhibit OPC (2A)-14.

<sup>78</sup> *Formal Case No. 1154*, Washington Gas Light Company’s Response to OPC Data Request No. 6-18, included as Exhibit OPC (2A)-15.

1           11.     *Recommendation 17: Create and document processes for creating*  
2                     *a program master schedule, assigning accountability for schedule*  
3                     *performance, and providing for ongoing analysis of schedule*  
4                     *variances and means to control them.*

5           The Company indicates that its updated PIP will include a Program Master Schedule and  
6           that “the Company will provide stakeholders the analysis used to assess, track, and control  
7           scheduling variances on an annual basis with the reconciliation reporting.”<sup>79</sup> The PIP is  
8           not expected until July 2020. Nonetheless, the Company’s response does not fully address  
9           the Management Audit Report recommendation. Specifically, the Company did not  
10          respond to the following:

11                   WGL should adopt a formal process defining the generation of formal  
12                   schedules and reports, and assigning clear, focused accountability for  
13                   schedule performance, Program schedule status, the schedule variance  
14                   analysis at the project and Program level, and the required actions to address  
15                   unacceptable delays. A scheduling procedure should be prepared to  
16                   document the process and communicate management expectations about  
17                   schedule performance. This procedure should be included in the Program  
18                   Implementation Plan that is currently being updated.

19  
20          *Formal Case No. 1115*, Management Audit Report 106. Here, again, in discovery  
21          responses produced prior to the submission of its Supplemental Direct Testimony, the  
22          Company provided information regarding this recommendation that is missing from  
23          Exhibit WG (2A)-2.<sup>80</sup> To the extent the formal process and procedure recommended in the  
24          Management Audit Report and described above is not included in the PIP, the Commission  
25          should direct the Company to develop and provide both items by a date certain.

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<sup>79</sup>     *Formal Case No. 1115; Formal Case No. 1142; Formal Case No. 1154; and Formal Case No. 1162*, WG (2A)-2 (Jacas) 6.

<sup>80</sup>     *Formal Case No. 1154*, Washington Gas Light Company’s Response to OPC Data Request No. 6-22, included as Exhibit OPC (2A)-16.

1           12.    *Recommendation 18: Regularly perform ground-up analyses of*  
2                    *crew requirements that consider a range of work levels consistent*  
3                    *with new business and regular replacement uncertainties, that use*  
4                    *sound expectations about future unit rates, and that objectively re-*  
5                    *evaluate an approach that excludes use of in-house crews for*  
6                    *replacement work.*

7           Among other things, the Management Audit Report recommends as follows:

8                   Comprehensive, current resource studies based on future work levels now  
9                   anticipated should underlie and clearly support the ability to perform  
10                  accelerated work at planned levels (i.e., conforming to schedules and to  
11                  realistic unit rates) and despite a reasonable range of uncertainty on work  
12                  that causes crew diversion from replacement work. The lack of such  
13                  schedules or unit rates during the period we examined underscores this  
14                  need. Whether or not accelerated replacement work continues to be  
15                  constrained by firm annual spending limits, crew requirements forecasts  
16                  should show the forces required to execute fully planned annual levels of  
17                  replacement quantities to be accomplished.

18                   We also believe that current study and analysis need to consider objectively  
19                   the role that internal resources can play and the benefits that they may  
20                   provide, whether cost, schedule, or internal skills and management talent  
21                   development . . . Developing an in-house element, even if small, and  
22                   applying it selectively should not, out of hand, be rejected as uneconomical.

23                   For the long-term, a company-wide resource planning model should be  
24                   developed to analyze the internal/external resource mix of various types of  
25                   work to position WGL to be able to respond effectively and proactively to  
26                   the anticipated resource-changing situation for what may remain a 40-year  
27                   or longer journey across terrain that management now understands as steep.

28           *Formal Case No. 1115*, Management Audit Report 111-112. In its response, the Company  
29           summarily states that it regularly performs assessment and short-term refreshes of its crew  
30           needs and how to meet them.<sup>81</sup> The response concludes that the Company “continues to  
31           reaffirm its strategy of using competitive jurisdictionally based blanket contracting in

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<sup>81</sup>       *Formal Case No. 1115; Formal Case No. 1142; Formal Case No. 1154; and Formal Case No. 1162, WG (2A)-2 (Jacas) 6.*

1 recent resource decisions.”<sup>82</sup> First, the response does not address the above-quoted  
2 recommendation for an analysis of the role and benefits of internal resources. Second, the  
3 response does not identify the “long-term, company-wide resource planning model”  
4 recommended by Liberty. Third, in discovery, the Company confirmed that it had not  
5 performed a cost-benefit analysis to determine the costs and benefits of internalizing some  
6 level of the workforce.<sup>83</sup> Instead, the Company stated that it performed a qualitative review  
7 of internalizing some of its workforce, which “reaffirmed the approach of using a  
8 contracted work force for planned construction activities, including PROJECTpipes.”<sup>84</sup>  
9 The Company also stated that its current practices satisfy the recommendation for  
10 comprehensive ground-up analyses of crew requirements, without demonstrating how that  
11 is the case.<sup>85</sup> The Company should be directed to undertake the analyses recommended in  
12 the Management Audit Report and provide the results to the Commission and stakeholders.

13 *13. Recommendation 20: Much more proactively report program*  
14 *process, problems and action plans to senior leadership, which*  
15 *needs to remain significantly engaged in challenging*  
16 *management’s performance in managing the program.*

17 The Management Audit Report concluded, in part, that “the Executive Dashboards reflect  
18 a sound step forward, but continue to focus more on unadorned data presentation than on  
19 the lessons that data teach and the needs it identifies . . . .[m]ost importantly, regular

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<sup>82</sup> *Id.* at 7.

<sup>83</sup> *Formal Case No. 1154*, Washington Gas Light Company’s Response to OPC Data Request No. 6-21, included as Exhibit OPC (2A)-17.

<sup>84</sup> *Id.*

<sup>85</sup> *Formal Case No. 1154*, Washington Gas Light Company’s Response to OPC Data Request No. 6-24, included as Exhibit OPC (2A)-18.

1 reporting needs to draw conclusions about the attributes of performance that increase or  
2 decrease quantity, shorten or lengthen schedule, and drive costs up or down.”<sup>86</sup> In  
3 response, the Company describes its “matrix organization” which provides for “oversight  
4 and coordination” of information and “provides program performance information . . . .”<sup>87</sup>  
5 This does not address the recommendation for reporting to draw conclusions. As it has  
6 with other recommendations, the Company provided information in discovery prior to the  
7 submission of its Supplemental Direct Testimony that is not included in its response to the  
8 Management Audit Report.<sup>88</sup> With respect to this recommendation, the Company provided  
9 a response regarding the areas stated by Liberty but also noted its commitment “to an  
10 annual update either in the form of an Executive Report or Technical Conference, after the  
11 end of each plan year, to update the parties on what the Company has observed with course  
12 corrections and strategic issues the Company faced and how these issues were  
13 addressed.”<sup>89</sup> The Commission should direct the Company to specifically address  
14 Recommendation 20 in its annual updates.

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<sup>86</sup> *Formal Case No. 1115*, Management Audit Report 121.

<sup>87</sup> *Formal Case No. 1115; Formal Case No. 1142; Formal Case No. 1154; and Formal Case No. 1162*, WG (2A)-2 (Jacas) 7.

<sup>88</sup> *Formal Case No. 1154*, Washington Gas Light Company’s Response to OPC Data Request No. 6-27, included as Exhibit OPC (2A)-19.

<sup>89</sup> *Id.*

1           14.    *Recommendation 22: Work with other underground utilities to*  
2                    *update construction maps to contain all existing and abandoned*  
3                    *facilities along planned main and service replacement routes.*

4           I do not take issue with the Company’s response, indicating that it “is willing to explore  
5           this recommendation with other utilities and government agencies performing work within  
6           the public space but is not in a position to unilaterally undertake such a significant  
7           project.”<sup>90</sup> However, the Company should perhaps commit to providing an update on  
8           progress regarding this item in its annual report. In this regard, I note that in discovery, the  
9           Company stated that it “indicates coordination with other agencies or utilities with the AOP  
10          label on its annual project list.”<sup>91</sup>

11   **Q.    CAN YOU PROVIDE INFORMATION CONCERNING THE COMPANY’S**  
12   **REJECTION OF CERTAIN RECOMMENDATIONS OF THE MANAGEMENT**  
13   **AUDIT REPORT?**

14   A.    Yes. A primary recommendation of the Management Audit Report was to eliminate the  
15   service replacement program (Distribution Program 1) as a separate Program, and to  
16   consolidate all service replacements into Programs 2 and Program 4 along with the  
17   replacement of mains to which they are attached.<sup>92</sup> Although the Company’s initial  
18   proposal incorporated this change, the Company’s Supplemental Direct Testimony  
19   includes Program 1 as a separate Program, which its witness Jacas states has been done

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<sup>90</sup>    *Formal Case No. 1115; Formal Case No. 1142; Formal Case No. 1154; and Formal Case No. 1162, WG*  
*(2A)-2 (Jacas) 8.*

<sup>91</sup>    *Formal Case No. 1154, Washington Gas Light Company’s Response to OPC Data Request No. 6-29,*  
*included as Exhibit OPC (2A)-20.*

<sup>92</sup>    *Formal Case No. 1115, Management Audit Report, 5, 14.*

1 “for ease of tracking and reporting to mirror the approved PIPES 1 Plan . . . .”<sup>93</sup> In Exhibit  
2 WG (2A)-2 (Jacas), the Company explains as follows: “Washington Gas’s Distribution  
3 Integrity Management Program (DIMP) performance measures (leak rates by material and  
4 type of facility) and the current risk model continues to demonstrate the need to maintain  
5 the priority of a targeted services-focused program. Therefore, Washington Gas has  
6 updated its PIPES 2 Plan to maintain Program 1 as a service only program.”<sup>94</sup> Program 1  
7 is still represented in the supplemental proposal and contains an increased budget of \$110.1  
8 million, which alone is more than the entire five-year budget of all programs in PIPES 1.<sup>95</sup>

9 **Q. DOES OPC SUPPORT THE COMPANY’S RESPONSE TO SOME OF THE**  
10 **LIBERTY REPORT RECOMMENDATIONS, REGARDING PROGRAMS?**

11 A. Yes. OPC supports part of the Company’s approach, which is to maintain Program 1 (a  
12 dedicated Program to replace aged and leak-prone services) but with an important  
13 condition: the most efficient way to implement the replacement Program from both an  
14 operational and cost-effective standpoint is to replace cast iron and bare (or inadequately  
15 coated to maintain cathodic protection) steel mains at the same time as the leak-prone  
16 services associated with those mains. Therefore, funds should be shifted from Program 1,  
17 whenever possible, to Programs 2 and 4. Replacing multiple services on a street without  
18 concurrent main replacement may be necessitated by leak history, but it is far more efficient

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<sup>93</sup> *Formal Case No. 1115; Formal Case No. 1142; Formal Case No. 1154; and Formal Case No. 1162, WG (2A)-2 (Jacas) 3:13-14.*

<sup>94</sup> *Formal Case No. 1115; Formal Case No. 1142; Formal Case No. 1154; and Formal Case No. 1162, WG (2A)-2.*

<sup>95</sup> *Id.* at 4, Table 3.



1 and thus far less costly to replace leak-prone services as part of a project that also  
2 incorporates the main replacement. This is an industry best-practice which takes advantage  
3 of a mobilized construction crew in the area needing to excavate and perform final  
4 pavement restoration only one-time and it produces the lowest per-unit replacement costs  
5 for services, ultimately saving money for ratepayers. Therefore, the Company should  
6 minimize (but not exclude) the practice of replacing services by themselves and maximize  
7 the practice of replacing mains and associated services as part of the same replacement  
8 project whenever possible.

9 **Q. DO YOU HAVE SPECIFIC COMMENTS ON OTHER RECOMMENDATIONS**  
10 **FROM THE LIBERTY MANAGEMENT AUDIT REPORT?**

11 A. Yes. A second recommendation of the Management Audit Report is:

12 Prepare for stakeholder dialogue a proposal to eliminate the "Optimain top-  
13 3" component of replacements, employing a prioritization method that  
14 emphasizes small diameter pipes subject to much higher failure rates.

15 *Formal Case No. 1115*, Management Audit Report 23. The Company has used an industry-  
16 leading model (Optimain) to facilitate risk-assessment analysis for proposed Program 2  
17 (unprotected steel mains) and proposed Program 4 (cast-iron mains), including at-risk  
18 services on each main segment.<sup>96</sup> The Optimain risk analysis model utilizes up to 82  
19 different data variables that are the responsibility of the operating company to input into  
20 the software system. Other operating companies have successfully used Optimain to target  
21 certain sub-groups of candidate main segments, such as small-diameter cast iron mains as

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<sup>96</sup> *Formal Case No. 1115*, Management Audit Report 20.

1 the highest priority for replacement in particular accelerated replacement programs. OPC  
2 supports the continued use of the Optimain model by the Company and opposes the  
3 Company's decision to eliminate this aspect of its main-replacement Program, which was  
4 an integral part of PIPES 1. I also, note that the Liberty Report recommends that the  
5 Company "prepare for stakeholder dialogue a proposal to eliminate the 'Optimain top-3'  
6 program."<sup>97</sup> To my knowledge, aside from the Company's *Application* in this proceeding  
7 and discussions related thereto, the Company has not facilitated a stakeholder dialogue  
8 prior to its proposal to eliminate the Optimain top-3 requirement. It is also vital that the  
9 Company follow Liberty's recommendation that WGL change prioritization of the data  
10 input into the model to provide for improved modeling results.<sup>98</sup>

11 **VI. THE DEFICIENCIES WITH THE PIPES 2 PLAN**

12 **A. *The Company Has Not Resolved OPC's Concerns with the PIPES 2***  
13 ***Plan***

14 **Q. DID OPC PREVIOUSLY RAISE CONCERNS WITH THE COMPANY'S PIPES 2**  
15 **PLAN?**

16 A. Yes. OPC submitted *Initial* and *Reply Comments* with the Commission on March 22 and  
17 April 8, 2019, respectively. Also, on August 8, 2019, OPC submitted its *Initial Comments*  
18 on the Liberty Management Audit Report with the Commission in Formal Case No. 1115.  
19

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<sup>97</sup> *Id.* at 14.

<sup>98</sup> *Formal Case No. 1115*, Management Audit Report 21.

1 **Q. IN YOUR OPINION, HAVE OPC'S CONCERNS BEEN RESOLVED OR**  
2 **ADEQUATELY ADDRESSED BY THE COMPANY?**

3  
4 **A.** No. My testimony below addresses unresolved concerns with respect to gas and  
5 engineering issues. Other issues raised by OPC's *Initial Comments* are stated therein as  
6 well.

7 *1. Transmission projects should not be included in PIPES 2*

8 **Q. HAS OPC PREVIOUSLY RAISED CONCERNS OVER INCLUSION OF**  
9 **TRANSMISSION PROJECTS IN PIPES 2?**

10 **A.** Yes. OPC's *Initial Comments* and my appended affidavit filed in this proceeding  
11 recommend that the Commission reject inclusion of transmission projects in PIPES 2.

12 **Q. HAVE THOSE CONCERNS BEEN RESOLVED BY THE COMPANY IN ITS**  
13 **SUPPLEMENTAL DIRECT TESTIMONY?**

14 **A.** No. If anything, the testimony of Company Witness Stuber only confirms my  
15 recommendation that these projects be excluded from PROJECT*pipes*.

16 **Q. PLEASE EXPLAIN WHY YOU BELIEVE THAT THE COMPANY'S PROPOSED**  
17 **TRANSMISSION PROGRAMS SHOULD NOT BE INCLUDED IN PIPES 2?**

18 **A.** There are two primary reasons why the proposed Transmission Programs should not be  
19 included in PIPES 2: 1) The Transmission Programs are inconsistent with the purpose of  
20 the APRP<sup>99</sup> and 2) most of the proposed Transmission Programs have not been shown to  
21 demonstrate safety benefits to District ratepayers.

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<sup>99</sup> *Formal Case No. 1093*; and *Formal Case No. 1115*, Order No. 17431, ¶ 68.

1    **Q.    CAN YOU EXPLAIN WHY THE PROPOSED TRANSMISSION PROGRAMS**  
2    **ARE NOT CONSISTENT WITH THE PURPOSE OF APRP?**

3    A.    Yes.  The requirements for Programs to be included in the APRP Surcharge mechanism  
4    are spelled out in the Commission’s Order No. 17431.  This Order states that a Program  
5    must meet the following criteria:

- 6           (a) the project started on or after June 1, 2014;
- 7           (b) the project assets are not included in WGL’s rate base in its most recent rate case;
- 8           (c) the project does not increase revenues by directly connecting the infrastructure  
9                replacement to new customers; and
- 10          (d) the project is needed to reduce risk and enhance safety *by replacing aging, corroded*  
11                *or leaking cast iron mains, bare and/or unprotected steel mains and services, and*  
12                *black plastic services in the distribution system.*

13        *Formal Case No. 1115, Order No. 17431, ¶ 68 (emphasis added).*  As OPC explained in its  
14        *Initial Comments*, the Company wants to broaden the Commission’s focus on accelerated  
15        replacement of high-risk pipe on the distribution system serving District ratepayers to  
16        projects that are shown “to reduce risk and enhance safety”<sup>100</sup> in general.  However, the  
17        criteria enumerated by the Commission in Order No. 17431 are very specific with respect  
18        to the types of materials and projects that qualify for the APRP.  The fourth criterion  
19        expressly limits APRP eligibility to Program-eligible pipe on the Company’s **distribution**

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<sup>100</sup>        *Formal Case No. 1154, OPC Initial Comments 12 (citing Formal Case No. 1154, Washington Gas’ PIPES 2 Application, Exhibit WG (B) (Stuber) 4:3-18).*

1 system serving the District. Thus, transmission projects are proscribed from inclusion in  
2 the APRP. As such, those proposed by WGL for inclusion in PIPES 2 must be rejected.

3 **Q. CAN YOU EXPLAIN WHY MOST OF THE PROPOSED TRANSMISSION**  
4 **PROGRAMS HAVE NOT BEEN SHOWN TO DEMONSTRATE BENEFITS TO**  
5 **DISTRICT RATEPAYERS?**

6 A. Yes. Most of the proposed Transmission Programs are not located in the District. On the  
7 contrary, they are located in other WGL jurisdictions (i.e., in Virginia or Maryland). The  
8 Company confirmed in response to an OPC data request that only two of the five proposed  
9 transmission projects, Program Nos. 4 and 5, would be sited partially in the District; the  
10 others are located completely outside of the District.<sup>101</sup> In terms of the estimated costs for  
11 the transmission programs, the Company stated that \$21.8 million of the estimated costs  
12 are for projects located entirely outside of the District, which is 91.6% of the total proposed  
13 transmission budget of \$23.9 million.<sup>102</sup> Given that the primary justification for  
14 accelerated pipeline replacement programs such as PROJECT*pipes* is the potential danger  
15 to the surrounding public, the transmission projects located wholly outside of the District  
16 do not pose such a potential danger to District ratepayers and, therefore, cannot be justified  
17 for inclusion in the PIPES 2 Plan on that basis.

18 I realize that certain of these transmission projects may help ensure the reliability of gas  
19 supplies to the District; however, that reliability benefit should be part of the Company's

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<sup>101</sup> See *Formal Case No. 1154*, Washington Gas Light Company's Response to OPC Data Request No. 7-16, included as Exhibit OPC (2A)-21.

<sup>102</sup> *Id.*

1 base rate program. In support of this reasoning, I note that the Maryland Public Service  
2 Commission and courts have found that “gas infrastructure improvements should be  
3 located in the State of a Commission’s jurisdiction in order for a gas company to promptly  
4 recover investment costs separate from base rate proceedings.”<sup>103</sup>

5 2. *Top-3 Optimain Replacement Programs.*

6 **Q. DID THE COMPANY EVER COMMIT TO REPLACING THE TOP THREE**  
7 **MAIN SEGMENTS IDENTIFIED BY THEIR OPTIMAIN OPTIMIZATION**  
8 **SOFTWARE MODEL?**

9 A. Yes. In their request for approval of a Revised APRP filed in Formal Case No. 1093, the  
10 Company stated unequivocally:

11 [T]he Company expects to include and commits to replacing the top three  
12 Optimain projects *each year*.

13 *Formal Case No. 1093, In the Matter of the Investigation into the Reasonableness of*  
14 *Washington Gas Light Company’s Existing Rates and Charges for Gas Service (“Formal*  
15 *Case No. 1093”)*, Washington Gas’s Request for Approval of a Revised Accelerated  
16 Pipeline Replacement Plan 5, filed August 15, 2013 (“Revised APRP”) (emphasis added).

17 In that same filing, WGL also stated “[o]ther main segments identified by Optimain will  
18 be included based upon their relative risk economics in combination with other factors,

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<sup>103</sup> Case No. 407503V, Before the Maryland Court of Appeals, *Washington Gas Light Company v. Maryland Public Service Commission, et al.*, No. 81, September Term, 2017. Opinion by Getty, J. Argued May 7, 2018, p. 2.

1 and, therefore, may or may not be the top-ranking projects when considering only their  
2 relative risk scores.”<sup>104</sup>

3 **Q. DID THE COMPANY COMMIT TO THE REPLACEMENT OF THE TOP-**  
4 **THREE OPTIMAIN PROJECTS VOLUNTARILY, OR WAS IT ORDERED TO**  
5 **DO SO BY THE COMMISSION?**

6 A. WGL made this commitment of its own volition.

7 **Q. DID THE COMPANY LIVE UP TO ITS COMMITMENT?**

8 A. No, not in every year. For instance, the Liberty Management Audit Report stated “WGL  
9 did not finish any of the planned Year 1 and 2 [Optimain] ‘top-3’ projects in the years  
10 included in an approved annual plan.”<sup>105</sup> However, WGL has stated that “[i]n the first five  
11 (5) years of PROJECT*pipes*, the Company spent more than \$25 million on the Optimain  
12 Top 3 projects, of a total \$108 million.”<sup>106</sup>

13 **Q. IS WGL PROPOSING IN ITS PIPES 2 APPLICATION TO CONTINUE TO**  
14 **REPLACE THE TOP-THREE MAIN SEGMENTS IDENTIFIED BY ITS**  
15 **OPTIMAIN RISK-ASSESSMENT TOOL?**

16 A. No.

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<sup>104</sup> *Formal Case No. 1093*, Washington Gas’ Revised APRP 12.

<sup>105</sup> *Formal Case No. 1115*, Management Audit Report 100.

<sup>106</sup> *Formal Case No. 1115*, Washington Gas’s Reply Comments 6-7, filed April 30, 2020 (“*WGL’s Reply Comments*”).

1 **Q. WHY IS THE COMPANY PROPOSING TO NO LONGER REPLACE THE TOP-**  
2 **THREE MAIN SEGMENTS IDENTIFIED BY THE COMPANY’S OPTIMAIN**  
3 **OPTIMIZATION SOFTWARE MODEL DURING PIPES 2?**

4 A. In WGL’s initial *PIPES 2 Application*, Company Witness Jacas states the Company  
5 believes “working through projects initiated as the result of risk analysis, based on the risk  
6 reduced per dollar spend metric, is the most effective method for prioritizing projects and  
7 maximizes the amount of risk removed in the District for a given funding level.”<sup>107</sup> The  
8 Company also provides cost-related reasons, arguing that the top-three Optimain-selected  
9 piping segments are sometimes large-diameter mains that are more expensive to replace.  
10 For instance, according to WGL, even though it accounted for “24% of the PIPES 1 budget,  
11 the Top 3 Optimain projects only accounted for 15% of the main install and retirement  
12 footage and 3% of the total services remediated.”<sup>108</sup>

13 **Q. WHAT IS YOUR OPINION OF WGL’S JUSTIFICATION FOR ABANDONING**  
14 **ITS COMMITMENT TO REPLACE THE TOP-THREE OPTIMAIN PROJECTS**  
15 **IN THIS NEXT PHASE OF PROJECT *pipes*?**

16 A. WGL’s reasoning is a mystery to me. In its Revised APRP, the Company unilaterally  
17 proposed to replace the top-three Optimain projects each year during PIPES 1. Further,  
18 WGL cited “risk reduction on a per dollar basis” as a predicate for this commitment.<sup>109</sup>  
19 However, it is now using only that additional replacement metric as the basis for reaching

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<sup>107</sup> *Formal Case No. 1154, WGL’s PIPES 2 Application, Exhibit WG (A) (Jacas) 20:7-10.*

<sup>108</sup> *Formal Case No. 1115, WGL’s Reply Comments 7.*

<sup>109</sup> *Formal Case No. 1093, Washington Gas’ Revised APRP 8.*



1 a polar opposite result with respect to PIPES 2 without acknowledging this inconsistency  
2 or offering any rationale or explanation in support thereof. The application of the “risk  
3 reduction on a per dollar basis” metric to Optimain projects in PIPES 2 should yield the  
4 same result as it did in PIPES 1—which, as I stated previously, served as a basis for WGL  
5 originally proposing and undertaking that obligation.

6 WGL’s cost-related reasons for abandoning its commitment to replace the top-three  
7 Optimain projects are similarly implausible. Again, it was the Company that committed—  
8 unilaterally—in its Revised APRP to replace the top-three Optimain projects “each  
9 year,”<sup>110</sup> and it did so with full knowledge of the costs associated with such replacements,  
10 having undertaken numerous construction projects of this nature under its normal  
11 replacements program during the years preceding PROJECTpipes. Further, WGL’s  
12 proposed PIPES 1 budget was approved by the Commission. So, the amount of money the  
13 Company envisioned needing or having at the time of its Optimain top-three proposal is  
14 what it ended up having when it undertook those projects in PIPES 1.

15 **Q. WOULD THE REQUIREMENT TO REPLACE THE TOP-THREE OPTIMAIN-**  
16 **SELECTED MAIN SEGMENTS EACH YEAR STILL BE AN EFFECTIVE**  
17 **REPLACEMENT REQUIREMENT DURING PIPES 2?**

18 A. Yes. The Company is now proposing that only a very small portion (\$12.6 million, or  
19 3.6%) of its PIPES 2 Distribution Program budget of \$350.1 million be spent on Program  
20 4 (Cast Iron Main),<sup>111</sup> despite the fact that the majority (84%) of the remaining pipe to be

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<sup>110</sup> *Formal Case No. 1093, Revised APRP 5.*

<sup>111</sup> *Formal Case No. 1115; Formal Case No. 1142; Formal Case No. 1154 and Formal Case No. 1162, WG*

1 replaced is cast iron, as shown in Exhibit OPC (2A)-27. In addition, Exhibit OPC (2A)-28  
2 shows that the vast majority (48 out of 50, or 96%) of the “most-risky” pipe segments on  
3 the Company’s Optimain top-fifty list are cast iron. Exhibit OPC (2A)-29 provides a  
4 comparison of the percentage removal of cast-iron piping over the past decade for 26  
5 publicly owned gas utilities. The exhibit shows that WGL’s DC utility is last on the list.  
6 Cast-iron mains generally represent the oldest piping on its system and two of the top-fifty  
7 segments on the Company’s Optimain “most-risky” list represent cast-iron piping installed  
8 in the 1890’s, making them more than 130 years old. These pipes will only continue to  
9 age if they are not selected for replacement. Furthermore, although the top-three Optimain-  
10 selected piping segments are large-diameter, they are relatively short replacements. Two  
11 of the segments are less than a thousand feet long and altogether, the three segments  
12 represent only about two-thirds of a mile. Because all of the Company’s cast-iron mains  
13 are slated for replacement during PROJECT*pipes*, they will have to be replaced some time  
14 before the end of the project, despite their relative replacement costs.

15 **Q. ARE THERE OTHER CAST-IRON REPLACEMENT STRATEGIES THAT**  
16 **OTHER GAS UTILITIES USE?**

17 A. Yes. Many gas utilities have developed a policy to replace their small-diameter, cast-iron  
18 piping segments based strictly on their diameter, starting with their smallest-diameter  
19 mains being replaced first. The reason this selection process is used is that cast iron tends  
20 to break circumferentially when it is subject to bending caused by traffic loads, tree-root

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(2A) (Jacas), Table 3, at 4; *Formal Case No. 1154*, Exhibit OPC (2A)-3.

1 movement, etc. This releases a greater amount of gas than might come from corrosion  
2 pitting leaks of steel mains. Since small-diameter, cast-iron pipes also have a smaller wall  
3 thickness, they cannot withstand bending forces as well as larger-diameter cast-iron pipes  
4 that have a greater wall thickness.

5 **Q. HAS THE POLICY OF REPLACING SMALL-DIAMETER CAST-IRON MAIN**  
6 **EVER BEEN RECOMMENDED FOR WGL?**

7 A. Yes. The Company's consultant (Jacob's Consultancy) for its recent cost-benefit analysis  
8 stated in its report that:

9 [B]y focusing on leaks as the primary safety risk, WGL is defining risk in a  
10 way that is out of sync with other North East and Mid Atlantic gas utilities  
11 when it comes to the prioritization of small diameter cast iron pipe (CI).  
12 Cast iron tends to break, leading to a catastrophic release of gas. WGL  
13 records breaks as a leak and prioritizes replacement according to the number  
14 of leaks on CI. The result is reflected in the consequence factor of the  
15 Optimain model. Other gas operators treat this as an element of the cause,  
16 i.e., the break, and actively prioritize the replacement of small diameter  
17 (typically 2-8" diameter CI pipe) along with bare and unprotected steel  
18 mains and services.

19 *Formal Case No. 1154; and Formal Case No. 1142, Washington Gas Light Company—*  
20 *Commitment No. 54—Cost Benefit Analysis 5, filed July 30, 2019 (“Cost Benefit*  
21 *Analysis”). Also, as supported by the Liberty Audit, replacement of larger cast-iron main:*

22 [P]roves much more costly, often leaving little of a replacement budget for  
23 the smaller mains that can be many times more likely to cracking. Small-  
24 diameter mains prove more likely to crack because their thinner walls mean  
25 that it takes less wall loss over time to weaken them to the point of failure.

26 *Formal Case No. 1115, Management Audit Report 23.*

27 **Q. WOULD YOU RECOMMEND A REPLACEMENT POLICY THAT REPLACES**  
28 **SMALLER-DIAMETER CAST-IRON PIPING?**

1 A. Yes. In addition to the replacement of the top-three “most-risky” segments identified  
2 through use of the Company’s Optimain model, a second Program that replaces small-  
3 diameter, cast-iron mains would be beneficial. This Program would sequentially replace  
4 first any cast-iron mains having a diameter less than or equal to two-inch diameter. Next,  
5 up to four-inch diameter cast-iron mains would be replaced, and then six-inch cast-iron  
6 diameter mains. Many gas utilities have even carried this policy on to target eight-inch  
7 diameter cast-iron mains, etc.

8 3. *WGL has not addressed verification reporting on the expanded*  
9 *scope of its selection criteria for Programs 1 through 4, which*  
10 *include the phrase “including Contingent Main and Affected*  
11 *Services.”*

12 **Q. CAN YOU EXPLAIN WHICH MAIN SEGMENTS MIGHT BE CONSIDERED TO**  
13 **BE CONTINGENT MAINS?**

14 A. Yes. Contingent mains are usually smaller sections of piping materials that are not the same  
15 as the material targeted for replacement in a particular replacement program but are part of  
16 the continuous piping being replaced. The Company proposes to replace these at the same  
17 time as the targeted material is being replaced. As I previously explained, three of the  
18 proposed Distribution Programs (Programs 2, 3, and 4) include a specific phrase “including  
19 Contingent Main and Affected Services” that expands the scope of the specific replacement  
20 category. The Company explained that “Contingent Mains” reflects instances when non-  
21 program-specific main materials are encompassed within the bounds of Program-eligible  
22 materials and logically group with Program-eligible main for replacement.<sup>112</sup>

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<sup>112</sup> *Formal Case 1154, Washington Gas’ PIPES 2 Application, Exhibit WG (A) 13 nn.8 & 9.*

1 **Q. DO YOU AGREE WITH THE COMPANY’S EXPANDED SCOPE OF**  
2 **REPLACEMENT CATEGORIES TO INCLUDE “CONTINGENT MAIN AND**  
3 **AFFECTED SERVICES”?**

4 A. No. While I do not take issue with “affected services”, I do not agree with the Company’s  
5 proposed inclusion of “Contingent main.”

6 **Q. PLEASE EXPLAIN.**

7 A. There are many justifiable reasons for replacing these contingent main segments at the  
8 same time that targeted mains are being replaced. Contingent mains can be composed of  
9 materials that qualify for accelerated replacement, but they can also be composed of  
10 materials that do not qualify for accelerated treatment.

11 **Q. CAN YOU EXPLAIN THE POTENTIAL PROBLEM ASSOCIATED WITH THE**  
12 **ADDITION OF THE PHRASE “INCLUDING CONTINGENT MAIN AND**  
13 **AFFECTED SERVICES” IN THE COMPANY’S PROPOSED DISTRIBUTION**  
14 **PROGRAMS 2, 3, and 4?**

15 A. Yes. Unfortunately, this phrase could potentially increase the amount of non-qualifying  
16 pipe replacements subject to accelerated recovery, without limit. The Company has  
17 estimated that “[o]verall, Contingent Main is projected to be approximately 4% of the total  
18 miles of main to be replaced in PROJECT*pipes*. ”<sup>113</sup> However, this is an estimate prior to  
19 starting the replacements. I propose that the amount of contingent main either be limited  
20 to a particular percentage of the total replacements each year, or, at a minimum, that the

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<sup>113</sup> *Formal Case No. 1154, Washington Gas’ PIPES 2 Application, Exhibit WG (A)-2, at 4.*

1 percentage of contingent main be reported at the conclusion of each year, with an  
2 accounting of what amount of contingent main that was replaced consisted of qualifying  
3 materials, what amount consisted of non-qualifying materials, and what amount and  
4 specific material types were replaced.

5 4. *Consistent with the Liberty Report, the Commission should*  
6 *consider an incentive-based or performance-based funding*  
7 *mechanism.*

8 **Q. HOW DOES THE COMPANY RECOVER ITS PRUDENTLY INCURRED COSTS**  
9 **UNDER PROJECT *pipes* 1?**

10 A. During PIPES 1, WGL is authorized to recover its allowable, prudently incurred  
11 construction costs through an accelerated infrastructure replacement surcharge known as  
12 the “Accelerated Pipe Replacement Plan Surcharge” (“APRP Surcharge”).

13 **Q. HOW DID THE APRP SURCHARGE COME ABOUT?**

14 A. Its origins trace back to WGL’s initial and revised APRP proposal filed in Formal Case  
15 No. 1093. In both, WGL proposed, and requested Commission approval of, its APRP  
16 proposal and a related surcharge mechanism, which it originally referred to as a “Plant  
17 Recovery Adjustment” (“PRA”). While the Commission eventually conditionally  
18 approved WGL’s revised APRP proposal in Formal Case No. 1093, it opened a brand-new  
19 proceeding (i.e., Formal Case No. 1115) to further examine WGL’s Revised APRP  
20 proposal and determine the appropriate cost-recovery mechanism. It was in that  
21 proceeding, through Order No. 17602,<sup>114</sup> that the Commission denied various parties’

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<sup>114</sup> *Formal Case No. 1115, Application of Washington Gas Light Company for Approval of a Revised Accelerated Pipe Replacement Program, Order No. 17602, rel. August 21, 2014 (“Order No. 17602”).*

1 requests for an evidentiary hearing to decide the merits of WGL’s APRP proposal, granted  
2 final approval of the Company’s APRP, and designated various issues regarding an  
3 appropriate cost-recovery mechanism for hearing.

4 **Q. WHY DID THE COMMISSION REFUSE TO HOLD AN EVIDENTIARY**  
5 **HEARING FOR THE REVISED APRP BUT YET DECIDED TO DO SO FOR THE**  
6 **UNDERLYING COST-RECOVERY MECHANISM?**

7 A. In Order No. 17602, the Commission found that the parties supporting a hearing had failed  
8 to identify any material issues of disputed fact with respect to WGL’s APRP proposal,  
9 which the Commission stated is a prerequisite for the establishment of an evidentiary  
10 hearing.<sup>115</sup> Conversely, in that same Order, the PSC concluded that a hearing was  
11 necessary in order to determine the appropriate cost-recovery mechanism, citing material  
12 issues of disputed fact identified by parties in that proceeding. The Commission also  
13 determined: “As OPC has noted, because WGL is attempting to gain approval for a  
14 surcharge which will ‘advance’ the rates the Company is currently charging District  
15 consumers, ‘the matter is a rate proceeding, which requires the scheduling of a hearing by  
16 the Commission prior to final determination and implementation.”<sup>116</sup>

17 **Q. IN AN EARLIER ANSWER, YOU STATED THE COMMISSION DESIGNATED**  
18 **SEVERAL ISSUES FOR CONSIDERATION DURING THE HEARING**  
19 **REGARDING THE APPROPRIATE COST-RECOVERY MECHANISM; WHAT**  
20 **WERE THEY?**

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<sup>115</sup> *Id.* ¶¶ 106-109.

<sup>116</sup> *Id.* ¶ 114.

1 A. The Commission, in Order No. 17602, designated the following six issues for consideration  
2 during the hearing regarding the appropriate PIPES 1 cost-recovery mechanism:

3 (1) Is the Revised Plant Recovery Adjustment (PRA) Surcharge  
4 as proposed by WGL the appropriate cost recovery  
5 mechanism to be implemented to ensure just and reasonable  
6 cost recovery from ratepayers for the APRP?  
7

8 (2) If WGL's revised PRA surcharge is not the appropriate  
9 funding mechanism, what is the appropriate cost recovery  
10 (surcharge) mechanism to be implemented to ensure just and  
11 reasonable cost recovery from ratepayers for the APRP?  
12

13 (3) What is a reasonable true-up process for the appropriate  
14 funding mechanism and how does it work?  
15

16 (4) What periodic reporting requirements or other procedures  
17 are necessary to adequately keep the Commission apprised  
18 of the progress of the collections under the funding  
19 mechanism in relation to the costs incurred and ensure there  
20 is no double recovery of costs?; [sic] and [sic]  
21

22 (5) What periodic reporting requirements or other procedures  
23 are necessary to ensure that only qualified APRP projects are  
24 funded by the APRP funding mechanism?  
25

26 (6) How should the funding mechanism be adjusted, if at all, to  
27 ensure that District ratepayers do not bear the burden of  
28 unwarranted cost overruns due to poor planning, poor  
29 management or poor execution of the APRP?  
30

31 *Formal Case No. 1115*, Order No. 17602, ¶ 116. Per a request from one of the parties, the  
32 Commission subsequently modified Issue 2 to read: "If WGL's revised PRA surcharge is  
33 not the appropriate cost recovery mechanism to be implemented to ensure just and  
34 reasonable cost recovery from ratepayers for the APRP?"<sup>117</sup>

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<sup>117</sup> *Formal Case No. 1115*, Order No. 17636 ¶ 15, rel. September 18, 2014 ("Order No. 17636").



1 **Q. WAS THE APRP COST-RECOVERY MECHANISM ACTUALLY LITIGATED IN**  
2 **FORMAL CASE NO. 1115?**

3 A. No. It was not. On December 10, 2014, WGL, OPC, and the Apartment and Office  
4 Building Association of Metropolitan Washington (“AOBA”) entered into a Settlement  
5 Agreement wherein it was agreed that, among other things, the Company would be allowed  
6 to recover its PIPES 1 costs through the APRP Surcharge.<sup>118</sup> The Commission  
7 subsequently approved the Settlement Agreement on January 29, 2015.<sup>119</sup>

8 **Q. DOES THE JOINT SETTLEMENT AGREEMENT APPROVED IN FORMAL**  
9 **CASE NO. 1115 ALLOW WGL TO RECOVER ALL OF ITS PROJECT***pipes*  
10 **COSTS THROUGH THE APRP SURCHARGE FOR THE ENTIRETY OF THE**  
11 **PROGRAM?**

12 A. No. The APRP Surcharge is effective only through the terminus of PIPES 1.

13 **Q. DO EITHER THE JOINT SETTLEMENT AGREEMENT APPROVED IN**  
14 **FORMAL CASE NO. 1115 OR PSC ORDERS ISSUED IN THAT PROCEEDING**  
15 **MAKE ANY PROVISION FOR HOW THE COMPANY IS TO RECOVER ITS**  
16 **PROJECT***pipes* **COSTS DURING PIPES 2 OR ANY OTHER PHASE OF THE**  
17 **PROGRAM?**

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<sup>118</sup> *Formal Case No. 1115*, Joint Motion for Approval of Unanimous Agreement of Stipulation and Full Settlement and attached Unanimous Agreement of Stipulation and Full Settlement, filed December 10, 2014 (“Settlement Agreement”).

<sup>119</sup> *Formal Case No. 1115*, Order No. 17789, ¶ 1, rel. January 29, 2015 (“Order No. 17789”).

1 A. No. As was the case with the Company's APRP proposal, the parties and the Commission  
2 must once again determine the appropriate cost-recovery mechanism for this phase of  
3 PROJECT*pipes*.

4 **Q. HOW, IN YOUR OPINION, SHOULD THE PARTIES AND THE COMMISSION**  
5 **GO ABOUT DETERMINING THE APROPRIATE COST-RECOVERY**  
6 **MECHANISM FOR PIPES 2?**

7 A. Reflexively defaulting to the continued use of the APRP Surcharge during PIPES 2, as  
8 advocated by WGL, would be ill-advised. Instead, both the parties and the Commission  
9 must critically assess the effectiveness and success of the APRP Surcharge in fomenting  
10 the accelerated replacement of leaky and leak-prone pipe on WGL's District distribution  
11 system during PIPES 1. Such a critical assessment cannot revolve around the singular  
12 question of whether the APRP Surcharge enabled the Company to receive timely cost  
13 recovery for its PIPES 1 costs. Though that was one of its intended purposes, the other,  
14 more fundamentally critical, objective of the APRP Surcharge was to facilitate the  
15 accelerated replacement of the miles of mains and number of services targeted for  
16 completion at the beginning of PIPES 1. As was clearly and unambiguously demonstrated  
17 through the Company's PIPES 1 performance and the Commission and Liberty's  
18 respective findings of WGL underperformance and mismanagement during PIPES 1, that  
19 simply did not happen. Accordingly, when it comes to determining the proper cost-  
20 recovery mechanism for WGL during PIPES 2, that determination must be against, and  
21 informed by, this backdrop.

1 **Q. YOU STATED PREVIOUSLY THAT THE COMMISSION SET THE QUESTION**  
2 **OF COST RECOVERY FOR HEARING IN FORMAL CASE NO. 1115; ARE YOU**  
3 **RECOMMENDING THE PSC DO THE SAME FOR PIPES 2?**

4 A. I am not an attorney, nor do I possess a background in law. So, I am not qualified to provide  
5 a legal opinion regarding whether an evidentiary hearing should or should not be held in  
6 this proceeding to decide the appropriate cost-recovery mechanism nor any other disputed  
7 aspect of WGL's *PIPES 2 Application*. However, as a lay person/witness, what I can say  
8 is that, as a point of fact, this identical issue—including, the six sub-issues referenced in  
9 my earlier testimony *supra*—was set for hearing by the Commission in Formal Case No.  
10 1115.

11 **Q. ARE YOU FUNDAMENTALLY OPPOSED TO THE USE OF A SURCHARGE**  
12 **MECHANISM DURING PIPES 2?**

13 A. No, I am not. However, regardless of what form of cost-recovery mechanism is  
14 ultimately adopted by the Commission in this proceeding, it must contain a well-designed  
15 performance incentive mechanism.

16  
17 **Q. WHAT DID THE LIBERTY MANAGEMENT AUDIT REPORT RECOMMEND**  
18 **WITH REGARD TO A PERFORMANCE-BASED FUNDING MECHANISM?**

19 A. The Liberty Report concludes and recommends as follows:

20 Project expenditures have run at anticipated annual rates, but high-risk pipe  
21 removal has proceeded much slower. Many projects remain in progress as  
22 project years come and go. We believe it has therefore become appropriate  
23 to consider the establishment of a performance condition to qualification of  
24 expenditures for accelerated recovery. We understand that longer projects  
25 proceed in stages, with new pipe being gassed in and customers re-  
26 connected with new services in groupings that cross sometimes longer

1 project durations. We considered a method for tying expenditure recovery  
2 to customers gassed in, but have concern that such an approach could incent  
3 sub-optimal work planning and performance. We therefore consider a  
4 holdback of a percentage of costs incurred, pending project completion.  
5

6 *Formal Case No. 1115*, Management Audit Report 40.  
7

8 **Q. WHAT IS THE COMPANY’S RESPONSE TO THIS RECOMMENDATION?**

9 A. The Company does not appear to embrace any additional protections in this regard.  
10 Instead, it explains its intent to “continue to seek recovery through the Commission-  
11 approved cost recovery mechanism, only on replacement activities eligible within  
12 approved PROJECT*pipes* plans”, and points to Merger Commitment No. 72 in Formal  
13 Case No. 1142.<sup>120</sup>

14 **Q. DO YOU AGREE WITH THE COMPANY’S FAILURE TO PROPOSE ANY**  
15 **WORK COMPLETION CONDITION TO EXPEDITED RECOVERY OF**  
16 **PROGRAM EXPENDITURES, AS RECOMMENDED IN THE LIBERTY**  
17 **REPORT?**

18 A. No, I do not. Given the performance concerns outlined in the Liberty Report, the  
19 Commission should require the Company to adopt a completion condition to expedited  
20 recovery of PROJECT*pipes* expenditures.

21 **Q. SHOULD A LOCAL DISTRIBUTION COMPANY’S ABILITY TO RECOVER**  
22 **ALL OF ITS COSTS UNDER AN ACCELERATED INFRASTRUCTURE**

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<sup>120</sup> *Formal Case No. 1115; Formal Case No. 1142; Formal Case No. 1154; and Formal Case No. 1162*, WG (2A)-2 (Jacas) 4, ¶ 9; *see also* Washington Gas Light Company’s Response to OPC Data Request No. 7-48, included as Exhibit OPC (2A)-25.

1           **REPLACEMENT COST RECOVERY MECHANISM BE LIMITED IN ANY**  
2           **WAY?**

3    A.    Yes. Cost-recovery mechanisms have arisen over the past decade to provide utilities with  
4           the financial support needed to fund their accelerated pipeline replacement investments.  
5           The goal of these accelerated replacement programs, and their associated cost-recovery  
6           mechanisms, is to facilitate the accelerated replacement of aged and at-risk infrastructure  
7           that would not normally be done under traditional ratemaking practices. The underlying  
8           justification for these unique cost-recovery mechanisms, which allow utilities to expedite  
9           the recovery of their replacement-specific capital expenditures between traditional rate  
10          cases, is that the investments made under the program are over and beyond what should  
11          normally be included in base rates.

12   **Q.    DO ANY STATE MECHANISMS INCLUDE PERFORMANCE-INCENTIVE**  
13   **REQUIREMENTS?**

14   A.    Yes. In New Jersey, the IIPs approved for natural gas utilities include leak-reduction  
15          metrics that must be met. For instance, the IIP authorized for Elizabethtown Gas Company  
16          includes a requirement that the Company reduce its year-end open leak inventory each year  
17          of its IIP. Failure to meet this annual leak reduction target may result in the Company  
18          forfeiting its cost recovery for expenses incurred under its IIP.<sup>121</sup> And in New York,  
19          National Grid's Leak Prone Pipe replacement program includes a performance metric

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<sup>121</sup>        *In the Matter of Elizabethtown Gas Company to Implement an Infrastructure Investment Program ("IIP") and Associated Recovery Mechanism Pursuant to N.J.S.A. 48:2-21 and N.J.S.A. 14:3-2A, NJ Bd. Reg. Comm. Docket No. GR18101197, 2019 WL 2656050 at 6, ¶13 (June 12, 2019).*

1 where the company receives a negative revenue adjustment of eight pre-tax basis points if  
2 it fails to reach annual replacement targets.<sup>122</sup>

3 **Q. DOES PROJECT*pipes* CURRENTLY HAVE ANY INCENTIVE- PERFORMANCE**  
4 **REQUIREMENTS?**

5 A. No. At present, PROJECT*pipes* is not governed by any performance-incentive measures,  
6 nor was the APRP Surcharge.

7 **Q. WHAT ABOUT MERGER COMMITMENT NO . 72 OF THE FORMAL CASE NO.**  
8 **1142 SETTLEMENT AGREEMENT: DOES IT SERVE (EITHER EXPLICITLY**  
9 **OR IMPLICITLY) AS A PERFORMANCE-INCENTIVE MECHANISM FOR**  
10 **PROJECT*pipes*?**

11 A. Merger Commitment No. 72 of the Settlement Agreement confected between the Joint  
12 Applicants and the parties in Formal Case No. 1142 is a PROJECT*pipes*' cost-containment  
13 measure;<sup>123</sup> it is not a performance-incentive mechanism. That provision reads (in  
14 relevant) part as follows:

15 Washington Gas will calculate, on annual basis, the average costs from the  
16 prior two (2) years of replacing/remediating the necessary infrastructure to  
17 reduce leaks within its PROJECT*pipes* program . . . . Washington Gas will  
18 not be allowed to recover any replacement/remediation expenditures for  
19 completed program work incurred post-Merger close (Fiscal Year 2019 and  
20 beyond) in the surcharge tracker mechanism that are above 120 percent of  
21 the rolling two year annual average program cost (calculated from program

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<sup>122</sup> *Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of KeySpan Gas East Corporation (d/b/a National Grid for Gas Service), New York Pub. Svc. Comm., Case No. 16-G-0058 (Dec. 16, 2016).*

<sup>123</sup> *Formal Case No. 1142, In the Matter of the Merger of AltaGas Ltd. and WGL Holding, Inc. ("Formal Case No. 1142"), Consent Motion to Reopen the Record in Formal Case No. 1142 to Allow for Consideration of Unanimous Full Settlement Agreement and Stipulation, and to Waive Hearing on the Proposed Settlement, filed May 8, 2018 ("Settlement Agreement").*

1 years 2017 and 2018) of the per unit and per program material  
2 replacement/remediation cost, hereafter referred to as ‘excess costs’;  
3 provided, for cast iron replacement/remediation costs, ‘excess costs’ shall  
4 be defined as costs above 120% of the Class 3 estimates for such projects  
5 until such time as Washington Gas has sufficient data to establish average  
6 costs of cast iron replacements/remediation by pipe diameter.

7  
8 *Formal Case No. 1142*, Order No. 19396, Appendix A 26, rel. June 29, 2018 (“Order No.  
9 19396”). Merger Commitment No. 72 further provides that WGL’s “excess costs” during  
10 PROJECT*pipes* “will be reviewed by the Commission and stakeholders in a prudence  
11 review in Washington Gas’s next base rate case to determine if the costs were prudently  
12 incurred and are appropriate for recovery through base rates.”<sup>124</sup> Thus, based on the plain  
13 language of this provision, it is readily manifest that it serves as a cost-containment  
14 measure. Through either surcharge recovery, a base rate case, or both, Commitment No.  
15 72 authorizes WGL to recover 100% of its PROJECT*pipes* costs. The Company’s ability  
16 to recover all of its PIPES costs is delimited by only a prudence requirement for those costs  
17 in excess of 120% of a rolling 2-year average of WGL’s PROJECT*pipes* expenditures,  
18 regardless of the Company’s performance. Conversely, a performance-incentive  
19 mechanism seeks to induce a certain performance level by putting full cost recovery at risk  
20 when performance metrics are not met, providing for added cost recovery when certain  
21 metrics are met or exceeded, or both. Commitment No. 72 does not imperil WGL’s ability  
22 to recover any of its prudently incurred PIPES costs, despite its performance.

23 **Q. WOULD YOU RECOMMEND ANY ADDITIONAL INCENTIVE-**  
24 **PERFORMANCE REQUIREMENTS?**

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<sup>124</sup> *Formal Case No. 1142*, Order No. 19396, Appendix A 26-7.

1 A. Yes. Similar to the requirement in New Jersey discussed above, I would recommend a  
2 measure that requires the annual reduction of the Company's year-end open leak inventory  
3 for each year of PIPES 2. The Company's history of its year-end open leak inventory is  
4 shown in Exhibit OPC (2A)-26.<sup>125</sup> Under one Merger Commitment (Commitment No. 55),  
5 AltaGas agreed to provide funds (\$4 million) to hire and train additional repair crews to  
6 reduce the Company's Grade 2 leak backlog, indicating the importance of reducing leak  
7 inventories.<sup>126</sup> In recent years, other gas utilities have strived for a "find-and-fix" policy  
8 which reduces their leak inventory to, or close to, zero carried leaks. Specifically, I  
9 recommend a minimum reduction of two percent of outstanding leaks per year in the  
10 Company's leak inventory, starting with the base figure of 149 leaks at year-end 2019.

11 5. *Restoration work should be improved upon.*

12 **Q. CAN YOU OFFER ENGINEERING GUIDANCE PERTAINING TO PROBLEMS**  
13 **WITH PAVING RESTORATION AND RECOMMEND SOLUTIONS TO**  
14 **BACKLOGS?**

15 A. Yes. There is a backlog of restoration projects from the first five years of PROJECTpipes.  
16 Therefore, WGL will need to complete this restoration work and the proposed PIPES 2  
17 construction work concomitantly.<sup>127</sup> In 2018, WGL's customer and resident liaison

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<sup>125</sup> This exhibit indicates that the Company accomplished a commendable reduction in leak inventory from 2013 to 2014. However, since then, the inventory has somewhat stabilized within a range of about 150 leaks to 290 leaks per year.

<sup>126</sup> *Formal Case No. 1142, Order No. 19396, at 21.*

<sup>127</sup> *Formal Case No. 1154, OPC's Initial Comments 34.*



1 received and resolved 30 complaints, primarily pertaining to restoration issues.<sup>128</sup> An  
2 examination of the construction sequence of a prototypical natural gas main and service  
3 replacement project can be simplified as follows:

- 4 1. Install new main adjacent to the older vintage main to be replaced.
- 5 2. Tie-in and gas-out the new main with one-way feed.
- 6 3. Install new services and make customer connections to the newly installed mains  
7 at locations where older services will be replaced.
- 8 4. Transfer existing services that do not require replacement from the old main to the  
9 new gas main.
- 10 5. Make final new gas main tie-ins creating multi-directional feed placing it fully into  
11 service.
- 12 6. Purge then cut-cap-and-abandon-in-place the old main to fully remove it from  
13 service.

14 A medium-sized gas main and service replacement project with 4,000 feet of main  
15 replacement and 200 service replacements (steps 1 through 6 listed above) may take three  
16 to eight weeks to complete. Each of the sequenced steps typically involves specific daily  
17 excavation, backfilling, and completion with a course or “patch” of temporary pavement  
18 at the end of each day. From a legal standpoint, the street is owned and governed by either  
19 the State, municipality, or in the case of District of Columbia, the “City-state” which  
20 enforces a specification for pavement restoration. The pavement specification includes  
21 compaction levels and minimum time periods for backfill settlement to occur prior to when  
22 permanent pavement restoration is allowed to be performed. Bituminous macadam or

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<sup>128</sup> *Formal Case No. 1115*, Washington Gas Light Company’s Customer Education Plan 2018 Annual Report 5, filed December 14, 2018 (“2018 CEP Report”).

1 asphalt and concrete each have a limited temperature range that they can be poured or  
2 produced, leaving certain cold seasons when permanent pavement restoration cannot be  
3 performed. In addition to complexities with gas main tie-ins, the two major contributing  
4 factors to pavement restoration “back-logs” are the required time periods for settlement  
5 and seasonal delays when permanent restoration cannot be performed. It is common for a  
6 gas utility in northern regions to cease all permanent pavement during November or  
7 December (depending on the location and weather) and not begin until about April when  
8 the asphalt plants restart operations, during which time the utility or contractor is  
9 responsible for maintaining an acceptable condition of temporary pavement at the  
10 construction site.

11 Because permanent restoration constitutes approximately 20% of the capital cost of many  
12 replacement projects, this also creates a delay in financially closing-out the project. A  
13 replacement project that is started in October and gassed-out in late November will likely  
14 not be permanently paved until the spring of the following year. Different methods of  
15 compaction (e.g., using select backfill, infrared-cured asphalt, and hot-mix-pavement  
16 binders) can all be used to decrease the length of time in which permanent restoration can  
17 be completed. Each, however, must be approved by the applicable city/state jurisdictional  
18 authorities. Because this is a common challenge for all accelerated replacement programs  
19 operating in many different jurisdictions, we can compare and distill how different cost  
20 recovery methods such as annual trackers or surcharge mechanisms account for the 80%  
21 project expense allocation in the fall and then the final 20% spend in the spring. Due to  
22 the cyclical nature of construction, the best-practice recommendation is a cost-recovery

1 mechanism that allows the utility to claim actual capital costs spent during the program  
2 year they are expended. This means the program rules should allow for project costs to be  
3 claimed when the new gas main is placed into service (“used and useful”). The permanent  
4 pavement costs may lag into the next program year based on the actual time of payment.  
5 This is a preferred method of cost recovery for surcharge repayment methods of accelerated  
6 replacement programs as it avoids recovery based on pavement restoration estimates. It  
7 also encourages a company to perform prompt pavement restoration and avoid restoration  
8 backlogs. Additionally, some programs have incented performance-based features that  
9 reward pro-active replacement project planning, scheduling, and execution when  
10 circumstances allow for pavement costs to be avoided when other construction projects can  
11 assume pavement restoration costs. There are also program restrictions that prevent cost  
12 recovery if the permanent restoration costs are not allocated within a maximum time period  
13 after the main is placed into service to act as a disincentive to a company for allowing a  
14 restoration backlog to occur. Therefore, as a condition to approving the PIPES-2 Plan,  
15 WGL should be required to provide a detailed plan that: (1) remedies the current restoration  
16 backlog in an expedited way that does not unduly impact the surcharge calculations; (2)  
17 ensures that restoration work is performed in a timely, sustainable way in the future; and  
18 (3) includes detailed information about the restoration backlog and the work being  
19 performed to address the backlog in WGL’s Annual Project List and Annual Completed  
20 Projects Reconciliation Report submissions.

1           6.       *GHG emission-reduction claims conflict with results in PIPES 1.*

2   **Q.    WHAT DOES THE COMPANY CLAIM FOR REDUCTIONS IN GHG's DURING**  
3   **PIPES 1?**

4   A.    The Company claims that its PIPES 1 work reduced the level of GHGs emitted from its  
5       distribution system by an estimated 5,674 metric tons of carbon dioxide (or CO<sub>2</sub>  
6       equivalent).<sup>129</sup>

7   **Q.    CAN YOU EXPLAIN WHAT THE COMPANY'S CLAIM MEANS AND WHAT IT**  
8   **DOES NOT MEAN FOR REDUCTIONS IN GHG's DURING PIPES 1?**

9   A.    Yes. The Company's claim means that the replacements of piping made during PIPES 1  
10       are estimated to reduce GHG's below what they would have been without the  
11       replacements. Importantly, however, the claim does not mean that the Company has  
12       reduced its total overall GHG emissions during PIPES 1. In fact, total GHG emissions rose  
13       during PIPES 1 due to increased leaks from the piping that was not replaced. The increases  
14       in hazardous leaks on the Company's system are shown in Exhibit OPC (2A)-6.

15       **B.    *The Company's Supplemental Direct Testimony Has Raised Additional***  
16       ***Concerns***

17   **Q.    DO YOU HAVE ADDITIONAL CONCERNS WITH THE COMPANY'S PIPES 2**  
18   **PLAN BASED ON THE SUPPLEMENTAL DIRECT TESTIMONY?**

19   A.    Yes. In addition to the concerns expressed in my Affidavit and OPC's Comments, the  
20       Company's Supplemental Direct Testimony has raised additional concerns with its PIPES  
21       2 Plan. Those concerns are discussed below.

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<sup>129</sup>       Formal Case No. 1154, Washington Gas' PIPES 2 Application, Exhibit WG (A) (Jacas) 7:12-18.

1           I.     *Interdependency of mercury service regulator replacement*  
2                     *program.*

3   **Q.     WHAT IS THE COMPANY’S PROPOSAL REGARDING MERCURY SERVICE**  
4   **REGULATOR REPLACEMENT IN THE PIPES 2 PROGRAM?**

5   A.     The Company estimates that there are approximately 2,800 mercury service regulators that  
6           are located at sites where the services will be replaced.<sup>130</sup> The Company plans to replace  
7           those 2,800 mercury service regulators as part of PIPES 2.<sup>131</sup>

8   **Q.     CAN YOU EXPLAIN YOUR CONCERNS WITH THE COMPANY’S PROPOSED**  
9   **INCLUSION OF MERCURY SERVICE REGULATOR REPLACEMENT IN THE**  
10   **PIPES 2 PROGRAM?**

11   A.     Yes. It is well established in the industry that older vintage pressure-regulating valves  
12           located at customer premises within customer meter-set assemblies that contain mercury  
13           (“mercury service regulators”) should be replaced as soon as practical.<sup>132</sup> Similarly, if the  
14           Company demonstrates sound engineering and good operational planning while work is  
15           being performed on-site at the customer premise, older vintage gas meters can be replaced  
16           at the same time as well. The important distinction, however, is that the PROJECT*pipes*  
17           Program has been approved as an accelerated replacement program designed to focus

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<sup>130</sup>     Formal Case No. 1157, *In the Matter of the Investigation into Washington Gas Light Company’s Compliance with the Recommendations of the National Transportation Safety Board* (“Formal Case No. 1157”), Washington Gas Light Company’s Implementation Plan, filed August 30, 2019; *see also* Formal Case No. 1115; Formal Case No. 1142; Formal Case No. 1154 and Formal Case No. 1162, WG (D) (Price) 7:25-8:2.

<sup>131</sup>     *Id.* at 8:5-7.

<sup>132</sup>     EPA 905-F-11-008; “Before You Tear it Down, Get the Mercury Out” U.S. EPA Recommended Management Practices for Pre-Demolition Removal of Mercury-Containing Devices from Residential Buildings, [https://www.epa.gov/sites/production/files/2015-10/documents/before\\_you\\_tear\\_it\\_down.pdf](https://www.epa.gov/sites/production/files/2015-10/documents/before_you_tear_it_down.pdf), May, 2011.

1 exclusively on the replacement of leak-prone, cast-iron- and bare-steel mains and old  
2 vintage bare- or unprotected-steel- and plastic services. The replacement of meters, meter-  
3 set assemblies, and service regulators have wisely and distinctly not been included in the  
4 Program.<sup>133</sup> The Company's *Application* provides only one singular justification that the  
5 two programs (MSRP and PIPES 2) "overlay" and therefore concludes that they are  
6 "interdependent".<sup>134</sup>

7 **Q. IS WGL SEEKING TO RECOVER THE COSTS IT INCURS REPLACING**  
8 **MERCURY SERVICE REGULATORS IN CONJUNCTION WITH ITS PIPES 2**  
9 **WORK THROUGH THE COST-RECOVERY MECHANISM ULTIMATELY**  
10 **APPROVED BY THE COMMISSION FOR THIS PHASE OF THE APRP?**

11 A. That is not entirely clear. While the Company claims in Supplemental Direct Testimony  
12 that there is some sort of putative interdependency between PIPES 2 and the replacement  
13 of certain mercury service regulators, it does not affirmatively request accelerated cost  
14 recovery for that work through the yet-to-be-determined cost-recovery mechanism for  
15 PIPES 2, nor does it propose a budget or dedicated Program for this ostensive  
16 "interdependent" work. Nevertheless, it is certainly conceivable that WGL's claims of  
17 "interdependency" between the two programs are, at the very least, a "dog whistle"  
18 designed to solicit authorization from the Commission for the Company to recover the  
19 replacement costs of the referenced 2,800 mercury service regulators through the

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<sup>133</sup> *Formal Case No. 1093*; and *Formal Case No. 1115*, Order No. 17431, ¶ 68.

<sup>134</sup> *Formal Case No. 1115*; *Formal Case No. 1142*; *Formal Case No. 1154* and *Formal Case No. 1162*, WG (D) (Price) 7-8.

1 accelerated cost-recovery mechanism ultimately approved for PIPES 2. In fact, I would  
2 say it is more than “conceivable”; it is highly likely.

3 **Q. WHY DO YOU SAY THAT?**

4 A. History. Specifically, even though the Company never proposed a budget or a dedicated  
5 Program for the meter replacements it performed alongside its PIPES 1 work, WGL  
6 attempted to recover those costs through the APRP Surcharge, even though it had never  
7 requested (and the Commission had never given it) prior approval to do so. When the  
8 Office brought this to the Commission’s attention, the PSC, in Order No. 19194, held that  
9 meter replacements do not meet the four criteria set forth in its Order No. 17431 for  
10 accelerated cost recovery through the APRP Surcharge and directed the Company to  
11 remove all meter-relocation costs from the final reconciliation of the surcharge.<sup>135</sup> In  
12 arriving at this conclusion, the Commission held that, although the Company’s Revised  
13 APRP Plan “stated that WGL intended to replace meters while replacing pipes”, WGL  
14 never requested the “authority to recover the cost of meter replacement as part of the  
15 surcharge.”<sup>136</sup> The Commission went on to find that, “[w]ithout more, the Plan’s reference  
16 to [sic] meter replacement is simply notice of the Company’s intent to efficiently replace  
17 infrastructure at the same time, not recover the costs the same way.”<sup>137</sup> That is precisely  
18 what the Company has done in this instance. It has merely provided the Commission

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<sup>135</sup> *Formal Case No. 1115*, Order No. 19194, ¶ 20, rel. November 30, 2017 (“Order No. 19194”).

<sup>136</sup> *Id.*

<sup>137</sup> *Id.*

1 “notice of the Company’s intent to efficiently replace infrastructure . . . .”<sup>138</sup> WGL has not  
2 requested permission to recover any of its mercury service regulator replacement costs  
3 through the PIPES 2 Program. Nor could it: similar to the meter replacements at issue in  
4 Order No. 19194, mercury service regulators do not meet the four criteria established in  
5 Order No. 17431.<sup>139</sup> Consequently, those costs should be excluded from cost recovery  
6 through the PIPES 2 Program.

7 For the simplicity of reviewing the Company’s status and progress, budget estimations  
8 versus actual expenditures, future planning, and overall effectiveness, the two programs  
9 should remain separate and distinct. It is better to simplify the straightforwardness of a  
10 regulator replacement program remaining a regulator replacement program and an  
11 accelerated replacement main and service program remaining an accelerated main and  
12 service program rather than the Company’s proposal to create an overly complex “all-in”  
13 amalgamation that lacks well-defined rules and thoughtful delineation.

14 2. *WGL’s newly proposed Program for “Work Compelled by Others”*  
15 *and “Advance of Pavement”.*

16 **Q. HOW IS THE COMPANY PLANNING TO HANDLE THE WORK THAT ARISES**  
17 **FROM WORK BEING DONE BY OTHER DISTRICT ENTITIES—SUCH AS,**  
18 **DDOT AND PEPCO INFRASTRUCTURE PROJECTS THAT INTERSECT THE**  
19 **COMPANY’S FACILITIES?**

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<sup>138</sup> *Id.*

<sup>139</sup> *Id.*



1 A. The Company has proposed adding a new Distribution Program (Program 10: “Work  
2 Compelled by Others”) to its PIPES 2 slate of accelerated recovery Programs.

3 **Q. HOW DOES THE COMPANY JUSTIFY THIS TYPE OF WORK AS**  
4 **QUALIFYING FOR ACCELERATED RATE TREATMENT?**

5 A. In the Company’s Supplemental Direct Testimony, WGL Witness Jacas argues that:

6 In Order No. 17602, the Commission stated that it wanted “high risk pipes  
7 to be replaced proactively regardless of whether they were originally slated  
8 for normal replacement or not and we have given WGL the flexibility to  
9 move mains and services that would otherwise be ‘normal replacement’ or  
10 ‘AOP-related projects’ into the APRP bucket if they are pipes that meet the  
11 APRP criteria.” Therefore, Program 10 meets the requirements set forth by  
12 the Commission for inclusion in the PROJECT*pipes* Plan.

13  
14 *Formal Case No. 1115; Formal Case No. 1142; Formal Case No. 1154 and Formal Case*  
15 *No. 1162, WG (D) (Jacas) 9:16-23 (quoting Formal Case No. 1115, Application of*  
16 *Washington Gas Light Company for Approval of a Revised Accelerated Pipe Replacement*  
17 *Program (“Formal Case No. 1115”) Order No. 17602 ¶ 50, rel. August 21, 2014).*

18 **Q. DO YOU AGREE WITH THE JUSTIFICATION STATED BY MR. JACAS?**

19 A. No, I do not.

20 **Q. CAN YOU EXPLAIN WHY YOU DISAGREE WITH MR. JACAS’ PROPOSAL TO**  
21 **INCLUDE PROGRAM 10 IN PIPES 2?**

22 A. Yes. Though the excerpted language from Order No. 17602 is quoted accurately by WGL  
23 Witness Jacas, the Commission merely stated it was “giv[ing] WGL the flexibility to move  
24 mains and services that would otherwise be ‘normal replacement’ or ‘AOP-related  
25 projects’ into the APRP bucket if they are pipes that meet the APRP criteria.” At most,  
26 this language could be construed as allowing the Company to replace a few discrete mains

1 or services under the PIPES Program resulting from “Work Compelled by Others.” It,  
2 however, is a far cry from countenancing the establishment of an entire PIPES Program—  
3 as the Company proposes to do now—that is singularly dedicated to these types of  
4 replacements. Had that been the Commission’s intent, it would have expressly “given  
5 WGL the flexibility to move” **ALL** such PIPES-eligible projects “into the APRP bucket,”  
6 which brings me to my next point.<sup>140</sup>

7 The Company currently performs replacements/remediations involving “Work Compelled  
8 by Others” under its normal replacements program. This is true for pipe comprised of  
9 either PIPES- or non-PIPES-eligible material. The importance of this point cannot be  
10 overstated as the Company uses separate crews for its normal replacements and PIPES  
11 work, respectively, and states in its Supplemental Direct Testimony that Program 10  
12 replacements will be dictated solely by material type and DDOT and Pepco’s respective  
13 construction schedules.<sup>141</sup> This means that, even though the Company proposes to include  
14 only Program-eligible mains and services in Program 10, those individual projects will not  
15 be replaced or remediated pursuant to the risk/prioritization protocols employed for all  
16 other PIPES projects. As such, if approved, the projects under the Company’s proposed  
17 Program 10 would “leapfrog” PIPES projects that, per the Company’s own  
18 risk/prioritization protocols, are in more urgent need of replacement but are being de-  
19 prioritized solely due to the inclusion of “Work Compelled by Others” projects in the

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<sup>140</sup> *Formal Case No. 1115*, Order No. 17602 ¶ 50.

<sup>141</sup> *Formal Case No. 1115; Formal Case No. 1142; Formal Case No. 1154 and Formal Case No. 1162*, WG (2A) (Jacas) 7:9-19.

1 PROJECT*pipes* Program and exogenous factors (i.e., DDOT and Pepco’s respective  
2 construction schedules). Conversely, if the Company were required to continue  
3 undertaking these projects under its normal replacements program—which, again, are  
4 performed by a dedicated work crew, separate and apart from those used for PIPES  
5 construction—as it did both before and during PIPES 1, the PROJECT*pipes*’ funding and  
6 labor in which WGL is proposing to use for “Work Compelled by Others” (Program 10)  
7 could be used to ensure the timely replacement of those individual PIPES’ projects with  
8 the highest risk rankings/prioritizations.

9 It is also important to remember that the Order No. 17602 language cited by WGL as  
10 ostensible support for its proposed Program 10 was articulated by the Commission at the  
11 very beginning of PIPES 1. At that time, neither the Commission nor the parties knew that  
12 by the originally scheduled terminus of PIPES 1 that leaks on the Company’s system would  
13 be increasing; that actual replacements of mains and services would be only approximately  
14 45% and 47%, respectively, of initial replacement expectations; that both the PSC and  
15 Liberty Consulting would identify serious mismanagement problems by the Company  
16 during the course of PIPES 1; or that WGL would have deferred 42 of its PIPES 1 projects.  
17 However, we do now. Accordingly, it is imperative that the Commission use the  
18 knowledge of WGL’s underperformance during PIPES 1 to inform its decisions regarding  
19 the contours of PIPES 2 so as to ensure none of the foregoing problems from PIPES 1  
20 revisits WGL or the APRP during this phase of PROJECT*pipes*. One such way for the  
21 PSC to do just that is to approve only those PIPES 2 Programs that target not only Program-

1 eligible materials but that also require individual project selections to be based on WGL's  
2 risk/prioritization protocols and not the construction schedules of third parties.

3 The replacement or support of mains and services and any other work required under the  
4 heading "Work Compelled by Others" is work that the Company has to perform for safety  
5 reasons and therefore would undertake anyway, even if there was no APRP. Thus, the  
6 replacements are not truly "proactive" replacements given that they have to be completed  
7 before they are damaged by others. This work should continue to be performed under the  
8 Company's normal base program. The APRP Program is reserved for projects that are over  
9 and above normal replacements. For all of these reasons, I recommend that the  
10 Commission reconsider its previous decision in Order No. 17602 relating to "Work  
11 Compelled by Others," and that the Company not allow WGL's proposed Program 10 to  
12 be included in this next phase of PROJECTpipes.

13 3. *WGL's ALD pilot program proposal is insufficiently detailed*  
14 *regarding the use of the ALD technology.*

15 **Q. YOU PREVIOUSLY RECOMMENDED THAT THE COMMISSION DIRECT**  
16 **WGL TO AVAIL ITSELF OF ALD AND LEAK QUANTIFICATION**  
17 **METHODOLOGIES TO AID IN LEAK DETECTION AND PIPELINE**  
18 **REPLACEMENT PRIORITIZATION. IS THAT STILL YOUR POSITION?**

19 A. Generally, yes. I note that in my Affidavit, OPC Exhibit (A), I recommend that ALD "be  
20 used in conjunction with, rather than in lieu of, WGL's current leak-detection techniques;  
21 it should not serve as a substitute for them."<sup>142</sup>

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<sup>142</sup> Formal Case No. 1154, Exhibit OPC (A) (McGee) 5 ¶ 9.

1 **Q. COMPANY WITNESS PRICE DESCRIBES THE COMPANY’S PROPOSAL TO**  
2 **IMPLEMENT ALD IN PIPES 2, INCLUDING RECOVERY OF THE ALD COST**  
3 **IN ADDITION TO FUNDS FOR THE OTHER PIPES 2 PROGRAMS. DO YOU**  
4 **AGREE WITH THE PROPOSED ALD PILOT PROGRAM?**

5 A. I do not support some aspects of the ALD pilot program as proposed by the Company in  
6 its Supplemental Direct Testimony, Exhibit WG (D).

7 **Q. PLEASE EXPLAIN YOUR CONCERNS WITH THE USE OF THE ALD**  
8 **TECHNOLOGY.**

9 A. WGL Witness Price explains that the ALD technology consists of high-sensitivity methane  
10 detectors mounted on vehicles that will be equipped with Global Positioning Systems  
11 (“GPS”).<sup>143</sup> These mobile units will provide the Company with data on the location and  
12 extent of methane leak volumes. My primary concern is that the mobile units can be  
13 economically capturing data that is not strictly for use in the PROJECT*pipes* Programs. A  
14 portion of the time and mileage that the mobile units are in use will occur when moving  
15 from one selected area to another, when moving from a selected area to an overnight hotel,  
16 when moving from the hotel to the selected area, etc. The costs for leak detection activities,  
17 when and if performed during these portions of trips, should not be assigned to  
18 PROJECT*pipes*; those costs should be assigned to the Company’s base rate leak detection  
19 programs.

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<sup>143</sup> Formal Case No. 1115; Formal Case No. 1142; Formal Case No. 1154; and Formal Case No. 1162, WG (D) (Price) 4:6-12.

1 **Q. WHAT OTHER CONCERNS DO YOU HAVE WITH THE PROPOSED USE OF**  
2 **ALD TECHNOLOGY?**

3 A. A second concern is that usage of the ALD technology is still considered to be in the  
4 developmental stage for many utilities. As such, when implementing a new technology, it  
5 is always a good practice to garner as much information as possible about its usage from  
6 other utilities that have gone through similar development efforts. Accordingly, I note that  
7 the Company states that the type(s) of ALD technology used “will be at the sole discretion  
8 of Washington Gas” and is expected to include multiple technologies within the course  
9 of the pilot.<sup>144</sup> In order to minimize risks with the pilot program, I recommend that  
10 selection of appropriate vendors be qualified on their prior usage and success at other  
11 utilities. I note that in response to a discovery request from OPC, the Company indicated  
12 that it “has identified potential service providers for ALD technology”<sup>145</sup> and that it has  
13 “engaged with a potential service provider”<sup>146</sup> in order to develop an estimate for expenses  
14 for the pilot program. At the very least, the Company should identify the criteria it has  
15 used or will use to select vendors, with past experience at other utilities being one of the  
16 criteria.

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<sup>144</sup> *Formal Case No. 1115; Formal Case No. 1142; Formal Case No. 1154; and Formal Case No. 1162, WG (D) (Price) 7:5-7.*

<sup>145</sup> *Formal Case No. 1154, Washington Gas Light Company’s Response to OPC Data Request No. 7-13, included as Exhibit OPC (2A)-22.*

<sup>146</sup> *Formal Case No. 1154, Washington Gas Light Company’s Response to OPC Data Request No. 7-51, included as Exhibit OPC (2A)-23.*

1 **Q. DO YOU HAVE ADDITIONAL CONCERNS REGARDING THE COMPANY’S**  
2 **PROPOSED ALD PILOT PROGRAM?**

3 A. Yes. A third concern is the estimated cost of the ALD Program. The Company has  
4 presented a breakdown of costs for different elements of the Program. I recommend that  
5 the Company present more information here, such as whether or not the vendors have  
6 provided contracts for their activities and whether or not such contracts have maximum-  
7 cost provisions. I also recommend that the Commission direct WGL to file with the  
8 Commission its annual report on ALD, as described in Mr. Price’s Supplemental Direct  
9 Testimony.<sup>147</sup> The allocation of budgeted amounts among the proposed Programs.

10 **Q. DO YOU HAVE ANY SUGGESTIONS ON THE ALLOCATION OF BUDGETS**  
11 **FOR THE PIPES 2 PROGRAMS?**

12 A. Yes, I do. First, the budget (\$12.6 million or 3.6% of the total distribution budget) for  
13 proposed Distribution Program 4 of PIPES 2 (Cast Iron Main (including Contingent Main  
14 and Affected Services)) is far too small to support meaningful replacement of cast-iron  
15 mains. Cast-iron mains have been identified to constitute the overwhelming majority of  
16 piping to be replaced by WGL. They also constitute the vast majority of the “most-risky”  
17 pipe segments identified in the Optimain list of fifty-top piping segments on the Company’s  
18 system.

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<sup>147</sup> *Formal Case No. 1154, WG (D) (Price) 7:13-18; see also Formal Case No. 1154, Washington Gas Light Company’s Response to OPC Data Request No. 7-52, included as Exhibit OPC (2A)-24.*

1 Second, the budget for proposed Distribution Program 1 of PIPES 2 (\$110.1 million)  
2 should be minimized. Services can be replaced at significantly lower cost in Programs 2,  
3 3, and 4.

4 Third, if, as requested by the Office, the Commission rejects proposed Program 10 (“Work  
5 Compelled by Others”), the \$80 million budgeted for that Program could be used in other  
6 areas of PIPES 2. In such an event, I would recommend that those funds be redirected to  
7 Program 4 (Cast Iron Main) whose budget is considered to be too small.

8 4. *An Additional Management Audit Prior to Proposed End of PIPES*  
9 2.

10 **Q. DO YOU HAVE ANY SUGGESTIONS ON THE TERM FOR PIPES 2 OR THE**  
11 **NEED FOR A SECOND MANAGEMENT AUDIT?**

12 A. Yes. Given the Company’s sub-par performance in PIPES 1 and considering the  
13 continuing critical need to replace aging and leaky pipes in the District, this proceeding  
14 represents an opportunity to review past performance and ensure that PIPES 2 does not  
15 repeat or exacerbate the problems of PIPES 1. Moreover, it presents an opportunity to  
16 modernize and make more efficient WGL’s methodologies for selecting the pipe to be  
17 replaced in order to, among other things, increase safety, reduce costs, and reduce  
18 greenhouse gas emissions. In my opinion, another management audit should be scheduled  
19 for some time during the course of PIPES 2, preferably Year 3. Along those same lines, I  
20 also recommend that PIPES 2 be only three years in duration. In this way, the proposed  
21 management audit can take place at the end of PIPES 2, rather than in the middle, as was  
22 the case during PIPES 1.



1 **VII. CONCLUSIONS AND RECOMMENDATIONS**

2 **Q. WHAT ARE YOUR MAJOR CONCLUSIONS REGARDING THE COMPANY'S**  
3 **PROPOSED APPLICATION FOR APPROVAL OF THE PIPES 2 PLAN?**

4 A. My major conclusions are that:

- 5 1. During PIPES 1 the Company replaced slightly less than half of the units originally  
6 planned.
- 7 2. The number of hazardous leaks repaired by the Company for each year from 2010  
8 through 2019 is still increasing.
- 9 3. Per the Liberty Management Audit Report "Progress, measured by work units  
10 accomplished or by the costs of those accomplishments, has fallen well short of  
11 expectations across the first four years of PROJECTpipes."<sup>148</sup>
- 12 4. All of the Transmission Programs are inconsistent with the purpose of  
13 PROJECTpipes,<sup>149</sup> and most of the proposed Transmission Programs have not been  
14 shown to demonstrate safety benefits to District ratepayers.
- 15 5. "Contingent Mains" can be composed of materials that qualify for accelerated  
16 replacement, but they can also be composed of materials that do not qualify for  
17 accelerated treatment.
- 18 6. The Company's claim of GHG reductions during PIPES 1 means that the  
19 replacements of piping made during PIPES 1 are estimated to reduce GHG's below  
20 what they would have been without the replacements. Importantly, however, the  
21 claim does not mean that the Company has reduced its total overall GHG emissions  
22 during PIPES 1.
- 23 7. It is better to simplify the straightforwardness of a mercury regulator replacement  
24 program remaining a mercury regulator replacement program and an accelerated  
25 replacement main and service program remaining an accelerated main and service  
26 program rather than the Company's proposal to create an overly complex "all-in"  
27 amalgamation that lacks well-defined rules and thoughtful delineation.
- 28 8. In their request for approval of a revised accelerated replacement program in  
29 Formal Case No. 1093, the Company stated unequivocally: "For any given year,

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<sup>148</sup> Formal Case No. 1115, Management Audit Report 6.

<sup>149</sup> Formal Case No. 1093; and Formal Case No. 1115, Order No. 17431, ¶ 68.

1 the Company anticipates replacing, at a minimum, the top 3 segments included on  
2 the Optimain listing.”<sup>150</sup>

3 9. The proposed budget (\$12.6 million) for proposed Distribution Program 4 of  
4 PIPES-2 (Cast Iron Main (including Contingent Main and Affected Services)) is  
5 far too small to support meaningful replacement of cast-iron mains. Cast-iron  
6 mains have been identified to constitute the overwhelming majority of piping to be  
7 replaced by WGL. They also constitute the vast majority of the “most-risky” pipe  
8 segments identified in the Optimain list of fifty-top piping segments in the  
9 Company’s system.

10 **Q. WOULD YOU PLEASE SUMMARIZE YOUR PRIMARY RECOMMENDATIONS**  
11 **REGARDING THE PROPOSED PROGRAM?**

12 A. My primary recommendation is that the Commission modify much of the Company’s  
13 proposed Program. Should the Commission choose to modify the proposal, I offer the  
14 following recommendations for improvements to WGL’s PIPES 2 Plan, in addition to the  
15 concerns and recommendations outlined by OPC in its prior Comments filed in this  
16 proceeding:

- 17 1. The Company should minimize (but not exclude) the practice of replacing services by  
18 themselves and maximize the practice of replacing mains and associated services as part  
19 of the same replacement project whenever possible. The proposed budget for proposed  
20 Distribution Program 1 of PIPES 2 should be minimized as services can be replaced at  
21 lower cost in Programs 2, 3, and 4.
- 22 2. The costs for portions of ALD trips not specifically detecting leaks for PIPES 2 should not  
23 be assigned to PROJECTpipes.
- 24 3. Selection of appropriate ALD vendors should be based on their previous work and success  
25 with other gas utilities.
- 26 4. The amount of “Contingent Main” should either be limited to a maximum percentage of  
27 the total replacements each year, or, at a minimum, the actual amount and percentage of  
28 Contingent Main replaced during the previous year should be reported annually by material  
29 type.

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<sup>150</sup> Formal Case No. 1093, Washington Gas Light Company’s Revised APRP 6.

- 1 5. A performance measure should be included in PIPES 2 that would further lower  
2 the number of leaks that the Company keeps in inventory each year.
- 3 6. As a condition of approving the PIPES 2 Plan, WGL should be required to provide  
4 a detailed plan that: (1) remedies the current restoration backlog in an expedited  
5 way that does not unduly impact the surcharge calculations; (2) ensures that  
6 restoration work is performed in a timely, sustainable way in the future; and (3)  
7 includes detailed information about the restoration backlog and the work being  
8 performed to address the backlog in WGL's Annual Project List and Annual  
9 Completed Projects Reconciliation Report submissions.
- 10 7. It is recommended that for the simplicity of reviewing the Company's status and  
11 progress, budget estimations versus actual expenditures, future planning, and  
12 overseeing overall effectiveness, the Mercury Regulator Replacement Program and  
13 APRP Program remain separate and distinct.
- 14 8. The Commission should reconsider its previous decision relating to "Work  
15 Compelled by Others," and the Company should remove this Program (Distribution  
16 Program 10) from its proposed list of Programs eligible for accelerated rate  
17 treatment.
- 18 9. The policy to replace the top-three main segments calculated to be "most-risky" by  
19 the Company's Optimain model should be continued during PIPES 2.
- 20 10. In addition to the replacement of the top-three "most-risky" segments, a second  
21 cast-iron Program that replaces smaller-diameter cast-iron mains would be  
22 beneficial.
- 23 11. The five-year term of the proposed PIPES 2 Plan should be shortened to three years,  
24 which would permit another outside management audit of the program to occur at  
25 the end, rather than during the middle, of PIPES 2 and enable the Commission and  
26 the parties to determine sooner how well Liberty's recommendations are enhancing  
27 WGL's management and overall performance. It is also recommended that the  
28 consultants that performed the management audit in PIPES 1 be considered for the  
29 recommended PIPES 2 audit in order to leverage the education and experience they  
30 acquired in the first audit.

31 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY AT THIS TIME?**

32 A. Yes, it does. However, I reserve the right to supplement my testimony if any updated or  
33 additional information becomes available during the course of this proceeding.

**BEFORE THE  
PUBLIC SERVICE COMMISSION  
OF THE DISTRICT OF COLUMBIA**

**In the Matter of**

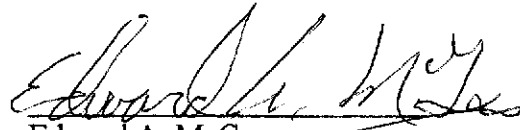
**Washington Gas Light Company's  
Application for Approval of the  
PROJECTpipes2 Plan**

§  
§  
§  
§  
§  
§

**Formal Case No. 1154**

**AFFIDAVIT**

Pursuant to Rule 133.4 of the Public Service Commission of the District of Columbia's Rules of Practice and Procedure, I, Edward A. McGee being first duly sworn, state that I am the witness whose Direct Testimony accompanies this Affidavit; that such testimony was prepared by me or under my direct supervision; that I am familiar with the contents thereof; that the facts set forth therein are true and correct to the best of my knowledge, information and belief; and that I adopt same as true, and as my sworn testimony in this proceeding. In light of the Commission temporarily waiving its notarization requirements for all documents related to the PSC's rules, none is included herewith.

  
Edward A. McGee

# ATTACHMENT 1

## CREDENTIALS OF EDWARD A. MCGEE

### **PROFESSIONAL CAREER:**

2012 – Present **Acadian Consulting Group** *Engineering Associate*

As Engineering Associate for Acadian Consulting Group, I am responsible for assisting in studies performed for utility companies and Public Utility Commissions.

1999 – Present **McGee Consulting** *Principal Consultant and Engineer – Energy Industry*

As Principal Consultant and Engineer, I am responsible for assisting larger consulting firms in their studies performed for utility companies and Public Utility Commissions.

1985 - 1999 **Stone & Webster Management Consultants, Inc.** *Vice President/Director*

As Vice President of Stone & Webster Management Consultants, I was responsible for consulting studies in the Gas Practice area, where I performed consulting analyses in the gas planning and gas operations areas for gas utility companies and public utility commissions.

1982 - 1985 **Stone & Webster Engineering Corporation** *Business Development Manager*

As Business Development Manager at Stone & Webster Engineering Corp., I was responsible for the construction of investment models for feasibility studies on largescale chemical and refining complexes.

1982 & earlier **W. R. Grace & Co.** *Director of Energy Resources; Manager of Chemical Development*

As Director of Energy Resources for W. R. Grace, I advised the Chief Operating Officer on corporate energy consumption and production. I also assisted operating divisions in securing long-term energy resources.

As Manager of Chemical Development at W. R. Grace, I analyzed potential acquisition targets in specialty chemical and high technology fields, developing corporate strategies for selected expansions.

**AMOCO Oil** *Supervisor of Technical Computer Programming; Internal Operations Research Consultant*

In a variety of engineering and computer modeling capacities at AMOCO Oil directed a staff of professionals in the development of technical programs in the refining, distribution and marketing areas.

**EDUCATION:**

**University of Chicago**, Master of Business Administration, Quantitative Analysis and Computers

**University of Notre Dame**, Master of Science in Chemical Engineering

**University of Notre Dame**, Bachelor of Science in Chemical Engineering

**LICENSES & CERTIFICATES:**

Licensed Professional Engineer (License Currently Retired) -- State of Indiana

U.S. Patent Holder -- Refinery Treating Process

**PROFESSIONAL AFFILIATIONS:**

American Institute of Chemical Engineers

The Institute of Management Sciences

**SAMPLE PUBLICATIONS AND PAPERS:**

"Using a Personal Computer as a Gas Supply Planning Tool." *Gas Industries* lead article.

"Personal Computers and the Natural Gas Industry." *Public Utilities Fortnightly*.

"Personal Computer-Based Long-Range Planning for Natural Gas Development and Supply Management." Presented at the *International Gas Union's 18th World Gas Conference*, Berlin, Germany.

"Role of Optimization Models in Dispatching Gas Supplies." Presented at *AGA Distribution/Transmission Conference*, Toronto, Canada.

"Experience With Gas Supply Optimization Models at Inland Natural Gas."

Presented at *IGT symposium on Personal Computers in the Gas Industry*, Chicago, Illinois.

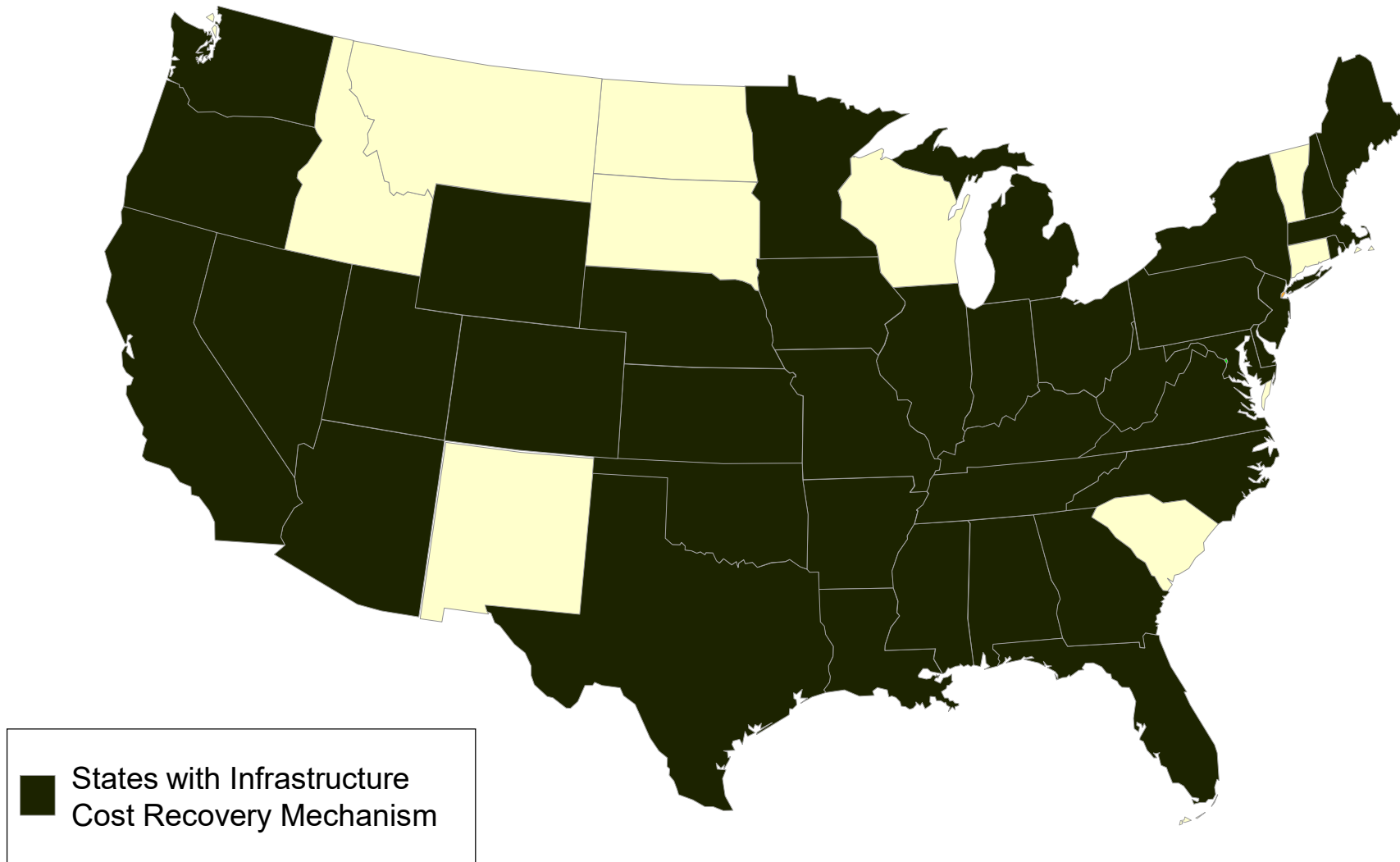
## Table of Exhibits

Exhibit	Title
Exhibit OPC (2A)-1	States with Gas Infrastructure Cost Recovery Rate Mechanisms
Exhibit OPC (2A)-2	WGL Response to OPC Data Request No. 7-3
Exhibit OPC (2A)-3	PIPES-2 Proposed Replacement Programs
Exhibit OPC (2A)-4	WGL Response to Discovery Question 9-10 (Attachment 01) in Formal Case No. 1115
Exhibit OPC (2A)-5	Comparison of Estimated Replacements to Actual Replacements during PIPES-1
Exhibit OPC (2A)-6	Number of Hazardous Leaks (Mains + Services) Washington Gas, D.C.
Exhibit OPC (2A)-7	WGL Response to OPC Data Request No. 7-44
Exhibit OPC (2A)-8	WGL Response to OPC Data Request No. 7-12
Exhibit OPC (2A)-9	WGL Response to OPC Data Request No. 6-2
Exhibit OPC (2A)-10	WGL Response to OPC Data Request No. 6-3
Exhibit OPC (2A)-11	WGL Response to OPC Data Request No. 6-8
Exhibit OPC (2A)-12	WGL Response to OPC Data Request No. 7-46
Exhibit OPC (2A)-13	WGL Response to OPC Data Request No. 6-11
Exhibit OPC (2A)-14	WGL Response to OPC Data Request No. 6-16
Exhibit OPC (2A)-15	WGL Response to OPC Data Request No. 6-18
Exhibit OPC (2A)-16	WGL Response to OPC Data Request No. 6-22
Exhibit OPC (2A)-17	WGL Response to OPC Data Request No. 6-21
Exhibit OPC (2A)-18	WGL Response to OPC Data Request No. 6-24
Exhibit OPC (2A)-19	WGL Response to OPC Data Request No. 6-27
Exhibit OPC (2A)-20	WGL Response to OPC Data Request No. 6-29
Exhibit OPC (2A)-21	WGL Response to OPC Data Request No. 7-16
Exhibit OPC (2A)-22	WGL Response to OPC Data Request No. 7-13
Exhibit OPC (2A)-23	WGL Response to OPC Data Request No. 7-51
Exhibit OPC (2A)-24	WGL Response to OPC Data Request No. 7-52
Exhibit OPC (2A)-25	WGL Response to OPC Data Request No. 7-48
Exhibit OPC (2A)-26	Number of Leaks in Inventory
Exhibit OPC (2A)-27	Remaining Miles of Main to be Replaced
Exhibit OPC (2A)-28	Fraction of Main Materials in Top 50 Most Risky Main Segments to be Replaced
Exhibit OPC (2A)-29	Decreases in Cast Iron Mileage over Last Ten Year (Eastern Utilities)





## States with Gas Infrastructure Cost Recovery Rate Mechanisms



Source: Commission Orders; AGA Natural Gas Rate Round-Up June 2012; AGA Innovative Rates, Non-Volumetric Rates, and Tracking Mechanisms: Current List February 2016; AGA State Infrastructure Replacement Activity May 22, 2015; Natural Gas Infrastructure Modernization Programs at Local Distribution Companies: Key Issues Considerations, January 2017.



PUBLIC SERVICE COMMISSION OF THE DISTRICT OF COLUMBIA

WASHINGTON GAS LIGHT COMPANY

FORMAL CASE NO. 1154

WASHINGTON GAS'S RESPONSE  
AND/OR NOTICE OF OBJECTION/UNAVAILABILITY TO  
THE OFFICE OF PEOPLE'S COUNSEL

OPC DATA REQUEST NO. 7

QUESTION NO. 7-3

- Q.** Reference Witness Jacas' Supplemental Direct Testimony at page 2, where he states the Company is proposing "to increase total expenditures from approximately \$135 million, including extension periods under the current PIPES 1 Plan, to approximately \$374 million over the next five (5) years (October 1, 2020 - December 31, 2025)."
- a) Does the Company realize that this proposal includes a 177%  $((\$374 - \$135)/\$135)$  increase in expenditures for the second five-year phase of PROJECT*pipes*?
  - b) Is the Company planning additional large increases in expenditures for each successive five-year phase of the Program?
  - c) Please supply the Company's estimate of total PROJECT*pipes* expenditures through 2054.

**WASHINGTON GAS'S RESPONSE**

05/18/2020

**A.**

- a) The Company acknowledges the increase in the total proposed expenditures for PIPES 2.
- b) The Company hasn't yet determined the expenditures for any successive five-year phase of PROJECT*pipes* because of possible changes in risk profiles, the volume of work compelled by others, evolving jurisdictional requirements, available qualified contractor resources and inflation. Each five-year phase of the program will be re-evaluated and presented upon submittal of the application.
- c) Washington Gas has not yet completed the analysis of the estimated expenditures for PROJECT*pipes* through 2054. The Company intends to provide the information as proposed in Exhibit WG (2A)-2, the

Company's response to Liberty Management Audit Recommendation No.  
8.

SPONSOR: Wayne A. Jacas, PMP  
Director – Construction Program Strategy and Management



## PIPES-2 Proposed Replacement Programs

Program Number	Program Description	Program Budget (\$Mill.)
<u>Distribution Programs:</u>		
1	Bare Steel and/or Unprotected Wrapped Steel Services	\$ 110.1
2	Bare and/or Unprotected Wrapped Steel Main and Services (including Contingent Main and Affected Services)	\$ 51.1
3	Vintage Mechanically Coupled Main and Services (including Contingent Main and Affected Services)	\$ 53.5
4	Cast Iron Main (including Contingent Main and Affected Services)	\$ 12.6
5	Copper Services	\$ 16.9
6	Distribution Gauge Lines	\$ 2.1
7	Regulator Station Enhancements	\$ 10.0
8	Low-Pressure Service Replacements/ Transfers	\$ 11.8
9	Advanced Leak Detection	\$ 2.0
10	Work Compelled by Others	\$ 80.0
<u>Transmission Programs:</u>		
1	Transmission and High-Pressure Pipe Replacement	\$ 14.1
2	Remote Control Valves	\$ 2.4
3	Transmission and High-Pressure Block Valve Replacement	\$ 1.1
4	Transmission and High-Pressure Valve Riser Replacement	\$ 0.1
5	Replacement of Components of DOT Transmission and High-Pressure Pipes to Enable the Use of In-line Inspection Tools	\$ 6.2

Source: Witness Jacas Supplemental Direct Testimony, Tables 3 and 4, pages 4-5.



**PIPES 1 Completed Units vs. Total PIPES Program Projected Units**

	Miles of Main Remediated	No. of Service Transfers	No. of Serv. Total
PIPES 1 Completed Units (Year 1 - Year 5 (thru 9/30/2019))	17	409	3,725
Total PIPES Program Projected Units (Year 1 - Year 40)	482	38,121	36,787





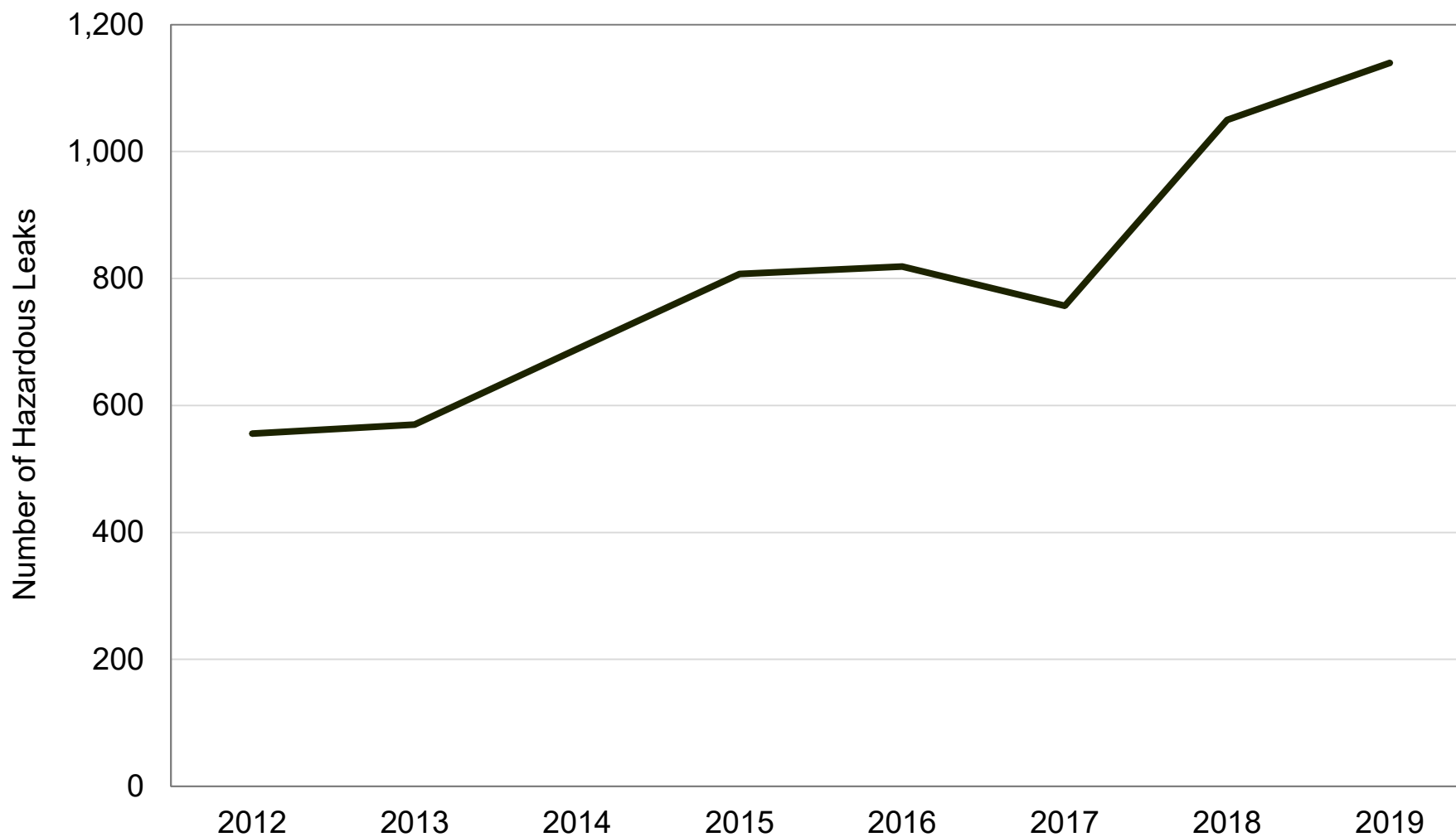
## Comparison of Estimated Replacements to Actual Replacements During PIPES-1

<b>Replacement Piping</b>	<b>Originally Estimated Replacements</b>	<b>Actual Replacements</b>	<b>Difference</b>	<b>Actual As A % of Estimated</b>
Miles of Main	38	17	21	45%
Number of Services	8,000	3,725	4,275	47%

Source: Washington Gas Customer Education Plan – 2017 Annual Report, December 2017, p. 3; and FC115, Company Response to Discovery 9-10, Attachment 01.



## Number of Hazardous Leaks (Mains + Services) Washington Gas D.C.



Source: U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration, PHMSA Form 7100.1-1, available at: <https://www.phmsa.dot.gov/data-and-statistics/pipeline/gas-distribution-gas-gathering-gas-transmission-hazardous-liquids>.



PUBLIC SERVICE COMMISSION OF THE DISTRICT OF COLUMBIA

WASHINGTON GAS LIGHT COMPANY

FORMAL CASE NO. 1154

WASHINGTON GAS'S RESPONSE  
AND/OR NOTICE OF OBJECTION/UNAVAILABILITY TO  
THE OFFICE OF PEOPLE'S COUNSEL

OPC DATA REQUEST NO. 7

QUESTION NO. 7-44

- Q.** Reference Exhibit WG (2A)-2 at page 2, Recommendation 5. With respect to the Program Implementation Plan ("PIP"), the Company indicated in response to OPC Data Request 6-13 that it planned to complete the PIP in March 2020. Please explain the reason for the delay in the Company completing the PIP as indicated.

**WASHINGTON GAS'S RESPONSE**

05/18/2020

- A.** The Company has experienced delays in completing the Project Implementation Plan, due to the priority given to participating in the Company's confidential settlement conferences, continuation of Formal Case No. 1115 with new reporting requirements associated with the Company's extension list, per Order No. 20313, while dealing with the new working environment the Company is facing given the pandemic situation and the turnover of a staff member. However, the Company provided an updated timeline for filing the PIP in Exhibit WG (2A)-2, under Recommendation 5.

SPONSOR: Wayne A. Jacas, PMP  
Director – Construction Program Strategy and Management



PUBLIC SERVICE COMMISSION OF THE DISTRICT OF COLUMBIA

WASHINGTON GAS LIGHT COMPANY

FORMAL CASE NO. 1154

WASHINGTON GAS'S RESPONSE  
AND/OR NOTICE OF OBJECTION/UNAVAILABILITY TO  
THE OFFICE OF PEOPLE'S COUNSEL

OPC DATA REQUEST NO. 7

QUESTION NO. 7-12

- Q.** Reference EXHIBIT WG (2A)-1 at page 8. Please describe the timeframe for completing the conversion to digital GPS mapping.

**WASHINGTON GAS'S RESPONSE**

05/18/2020

- A.** Washington Gas does have a digital mapping system with coordinate systems consistent with those of GPS enabled equipment. In order to fully leverage the capabilities of sufficiently accurate GPS data, Washington Gas's spatial accuracy improvement efforts would need to be completed as would the technology and tools needed to effectively leverage a spatially accurate system, all of which are part of the technology roadmap. To these ends, Washington Gas continues to participate in industry led dialogue and teams focused on tracking the development and pilot deployment of these technologies. Additionally, efforts associated with bringing spatially accurate reference data into the Company's GPS system continues, as this is necessary to utilize as references for spatial corrections in line with leveraging spatially accurate GPS data also known as a conflation study. Related initiatives, in the areas of Work Management, GIS and Tracking and Traceability efforts also leverage and support the future deployment of GPS enable equipment. Currently, the Company is in the process of actively scoping upgrades to the Geospatial Information System (GIS) which is anticipated to establish potential timelines and estimated expenses. While associated improvements and work continues, these efforts are underway and therefore the results not yet available.

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Director – Construction Program Strategy and Management





PUBLIC SERVICE COMMISSION OF THE DISTRICT OF COLUMBIA

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WASHINGTON GAS'S RESPONSE  
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THE OFFICE OF PEOPLE'S COUNSEL

OPC DATA REQUEST NO. 6

QUESTION NO. 6-2

- Q.** Refer to *Formal Case No. 1115*, Final Report Management Audit of PROJECTpipes, filed April 19, 2019 ("Audit") at page 24, recommending that WGL "ensure full accounting for pressure differences" related to partial replacements in a contiguous area, and noting that "knowing exact supply pressure is critical for safe operation." For each of the related practices listed below, (i) describe the practice in detail; (ii) identify when and how WGL initially implemented each of these protocols; (iii) explain whether these protocols were in effect during the Audit period; and (iv) if the protocols have not been implemented, explain when and how WGL will begin implementing the protocols:
- a. Including warnings on drawings with multiple pressures.
  - b. Requiring a Pressure Operations review of designs.
  - c. Implementing 100' awareness zones around regulators in the GIS (Smallworld) mapping and record-keeping system.
  - d. Implementing 100' awareness zones around regulators on drawings.
  - e. Review of D.C. permits applied for within 100' of regulatory stations.
  - f. Implementing pre-construction meetings for projects with changes in pressure.
  - g. Implementing pre-construction checklists for projects with changes in pressure.
  - h. Implementing a secondary design review by an engineering manager.
  - i. Implementing a secondary design review by a design contractor.
  - j. Adding pressure-related items to design checklists.

**WASHINGTON GAS'S RESPONSE**

11/01/2019

**A.**

- a. The Company now includes more overt warnings on drawings with multiple pressures. These were initiated in September 2018, after the Audit period. All distribution design drawings detailing construction activities where distribution facilities have different operating pressures include caution notes on each page.
- b. The Company requires a Pressure Operations review of designs. This review task was established in May 2019, after the Audit period. The Pressure Operations group is responsible for the operation, maintenance and inspection of pressure regulating facilities. Washington Gas instituted a pre-construction meeting for all projects on regulator stations, within 100 feet of a regulator station, projects involving tie-ins or abandonments of low pressure main. The meeting includes representatives from Pressure Operations, Construction and the contractor performing the underground work.
- c. The Company implemented 100' awareness zones around regulators in the GIS (SmallWorld) mapping system. This was in place December of 2018 after the Audit period. This is visible in SmallWorld as a yellow highlighted area with a call out "CONTACT PRESSURE OR GAS CONTROL BEFORE EXCAVATING."
- d. The Company implemented 100' awareness zones around regulators on drawings in February 2019 after the Audit period, and by enhancing the mapping system to clearly highlight the location of all regulator stations including a 100 foot "awareness zone". Maps include annotation to contact Pressure Operations before conducting any work within the "awareness zone".
- e. The Company implemented additional procedures regarding the review of permits in the DC Transportation Online Permit System ("DTOPS"), the permit tracking mechanism for all utilities, to include any work submitted within 100' of a regulator after the Audit period in March 2019. Additional statuses were added to DTOPS comments to inform the applicant of a regulator station in the vicinity and to provide the accurate contact information to proceed through Pressure Operations.
- f. In October 2018, Washington Gas instituted a pre-construction meeting for all projects on regulator stations, within 100 feet of a regulator station, projects involving tie-ins or abandonments of low pressure main. The meeting includes representatives from Pressure Operations, Construction and the contractor performing the underground work to discuss the necessary precautions and protocols when working near multiple pressure

systems and regulators (pre-construction checklist). The parties discuss the regulator station information and pressures, as well as all pressure tie procedures and requirements.

- g. See the response to subpart (f) above.
- h. The Company implemented a secondary design review to be completed by an Engineering Manager after the Audit period in June 2019. The secondary design review confirms the existence of low pressure to medium pressure protocols, such as regulator installation, and warning labels on drawings.
- i. The Company implemented a second design review to be completed by the design contractor after the Audit period in February 2019. The secondary design review confirms the existence of low pressure to medium pressure protocols, such as regulator installation, and warning labels on drawings, in addition to reviewing existing and proposed conditions, drawing setup, cover page and deliverable review, comment review, and project closeout.
- j. The Company added pressure-related items to the designer checklist in February 2019 after the Audit period. These checks include confirmation of main and service pressures, the presence of multiple pressure warnings where necessary, correct pressure tie information, etc. Pressure-related items were also added to the engineer authorization checklist in June 2019 to include a review by Pressure Operations, 100' awareness zones around regulators and main and service pressure confirmation.

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Director - Construction Program Strategy and Management



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**OPC DATA REQUEST NO. 6**

**QUESTION NO. 6-3**

- Q.** Refer to the Audit at page 24, which recommends that WGL undertake "aggressive efforts to identify and correct all errors or omissions in the main and service inventory," specifically, with regard to at-risk inventory. For each of the related practices listed below, (i) describe the practice in detail; (ii) identify when and how WGL initially implemented each of these practices; (iii) explain whether these practices were in effect during the Audit period; and (iv) if the protocols have not been implemented, explain when and how WGL will begin implementing the protocols:
- a. Initiatives to correct WGL's records regarding its mains inventory.
  - b. Initiatives to correct WGL's records regarding its services inventory.
  - c. Efforts to identify the additional information needed to implement the Distribution Integrity Management Program.
  - d. Increase information collection regarding service materials and locations.
  - e. Performing records research to identify unknown materials.
  - f. Updating the GIS (Smallworld) system to reflect new and changed information regarding materials and locations.

**WASHINGTON GAS'S RESPONSE**

11/01/2019

**A.**

- a. Beginning in 2012, the Company took proactive measures to populate and connect identified incomplete or faulty data (nulls) in SmallWorld based on pipe size (services only), material and year. Nulls were addressed and identified by going from one set of records to the next, using known information about the pipe replacement to fill in missing data. This is an ongoing effort. These measures were in place during the audit period.
- b. See the response to subpart (a) above.

- c. Washington Gas' Distribution Integrity Management Program (DIMP) has been in place since August 2011 and was in place during the audit period. The Company sources of information in the implementation and maintenance of the program include, but are not limited to: incident and leak history, corrosion control records, continuing surveillance records, leak survey records, maintenance history, operator qualification records, excavation damage history, compliance audit results, and quality inspections.
- d. See the response to subpart (a) above.
- e. See the response to subpart (a) above.
- f. Washington Gas, from 2017 to 2019, targeted facilities with unknown pipe size, install date, and materials in an effort to clean up its geographic information system SmallWorld. The Company is currently performing these corrections. In 2018, the Company completed the research and SmallWorld update of the service stubs in its Washington, D.C. distribution system.

Additionally, from 2018 to 2019, the Company mapping group created and implemented a number of proactive queries and reports which target missing information related to EFV, TSV, pipe size, pipe material and year of installation in SmallWorld. The results of the queries and reports were used to make several corrections and updates in SmallWorld.

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OPC DATA REQUEST NO. 6

QUESTION NO. 6-8

- Q.** Refer to the Audit at page 38, which identifies the program management-related practices and protocols that should be completed in a prompt manner. For each of the related measures listed below, (i) provide a detailed status update of WGL's efforts currently underway to complete each task; (ii) specifically identify what it will entail to complete and implement each task; and (iii) provide a timeline for when WGL expects to fully implement each measure:
- a. A complete scheduling system with integrated schedules.
  - b. Comprehensive monthly program status reports.
  - c. Additional measures that relate production to costs.
  - d. Management systems that provide insightful analysis that leads to corrective actions.

**WASHINGTON GAS'S RESPONSE**

11/01/2019

**A.**

- (a) Washington Gas will not utilize an integrated schedule. The Company has established processes in place that have defined responsibilities for the life cycle of its projects from inception until closeout. In addition to the well-established roles and responsibilities, Washington Gas has added a Manager of Construction Management and a dedicated Project Manager (PM) to the District of Columbia to help facilitate the needs of PROJECT*pipes*. The Company provides a schedule for each project submitted to the Commission on the annual project list to be monitored by the PM.
- (b) See the responses to FC 1154 OPC DR 2 – 44 and FC 1154 OPC DR 4 – 26.
- (c) In addition to the referenced reports in subpart (b) above, Washington Gas develops and reviews Spend and Unit reports with the APRP Operating Committee. These reports capture main and service footages installed

and retired, the number of services replaced/transferred, and the costs associated with each on both a project and program level. The Spend and Unit report also displays the percentage of construction that has been completed.

- (d) Washington Gas currently provides monthly dashboards to track costs at a program level to manage proposed work and schedule. The Company also uses variance meetings to track deviations from the estimated costs, schedule, and scope. Construction performance is monitored through bi-monthly workload meetings with internal Construction personnel and external contractors. Washington Gas leverages BCA Status Reports and BCA Held Open reports to promote the final closure of individual projects. In addition, the program budget is monitored monthly in budget meetings by Construction Management, APRP Operating Committee, and Executive Governance Committee.

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Director - Construction Program Strategy and Management



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OPC DATA REQUEST NO. 7

QUESTION NO. 7-46

- Q.** Reference Exhibit WG (2A)-2 at 3, Recommendation 7. The Company states, in part, that it “will file the semi-annual report each August 31<sup>st</sup> throughout PROJECTpipes 2 Plan if the project year is equivalent to a calendar year still.” Please explain how the Company’s plan to file the report each August 31<sup>st</sup> is semi-annual.

**WASHINGTON GAS'S RESPONSE**

05/18/2020

- A.** Currently, the Company files the Annual Completed Projects Reconciliation report on December 31<sup>st</sup> of each year for the period ending September 30<sup>th</sup>. In other words, the current process allows for approximately 90 days for the report to be generated. In a similar manner, the report filed on August 31<sup>st</sup> would cover the period January - June, or the first six (6) months of the program. Furthermore, the Company is proposing that PIPES 2 be undertaken on a calendar year basis. Each project year will begin January 1<sup>st</sup> and continue through December 31<sup>st</sup>. The additional months are the time needed to close the financials and create the final report.

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OPC DATA REQUEST NO. 6

QUESTION NO. 6-11

**Q.** Regarding the Audit at page 39, wherein Liberty recommends that WGL "increase focus on D.C.-specific performance":

- a. Please identify and describe any and all reports and dashboards that WGL has finalized and implemented to monitor its performance on PROJECTpipes.
- b. Please describe any and all verifiable methods that WGL is developing, or planning to develop in the future, to ensure the success of PROJECTpipes. Provide the planned effective date for the methods described in this subpart (b).

**WASHINGTON GAS'S RESPONSE**

11/01/2019

**A.**

- a. See the response to FC 1154 OPC DR 2-44, FC 1154 OPC DR 2-47, FC 1154 OPC DR 4-26, FC 1154 OPC DR 6-5, FC 1154 OPC DR 6-8 subpart (c), and FC 1154 OPC DR 6-8 subpart (d). Additionally, the Company performs Lessons Learned at the end of each program year to further improve program management and execution of PROJECTpipes.
- b. Washington Gas is currently updating its PROJECTpipes Program Implementation Plan (PIP), which has been used in coordination with other internal guidance and flow charts, to successfully implement the first five (5) years of PROJECTpipes work. The new PIP will include lessons learned and improve the level of detail and clarity for:
  - Program organization structure;
  - Program scope assumption, exclusions and risks;
  - The basis for contingency and cost scheduling baselines;
  - ARP Governance Committee Charter;
  - ARP roles and responsibilities;
  - Determining and capturing scope, schedule, and cost variance;

- Flowcharts for BCA Re-Authorization, closure and other key ARP processes;
- Methods of program management;
- Compliance and reporting requirements;
- Analysis requirements; and
- Metrics to monitor progress and productivity.

Washington Gas is committing, in response to the Audit, to an annual update either in the form of an Executive Report or Technical Conference, after the end of each plan year, to update the parties on what the Company has observed with course corrections and strategic issues the Company faced and how these issues were addressed.

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**OPC DATA REQUEST NO. 6**

**QUESTION NO. 6-16**

- Q.** Refer to the Audit at page 85, which recommends that WGL "enhance the provision of insightful analysis of cost performance issues and provide cost management support" for PROJECTpipes. For each of the related practices listed below, (i) state when the measure will be in place; (ii) provide a detailed description of how WGL is implementing, will implement, or both each practice; and (iii) provide a detailed explanation for how it will satisfy the Audit's recommendation that WGL enhance its analysis of cost performance issues and provide cost management support to the PIPES Program.
- a. Enhancing existing processes to improve WGL's analysis of PROJECTpipes performance and costs.
  - b. Use of a new PROJECTpipes Project Manager.
  - c. Enhance WGL's insight into individual projects and accountability.
  - d. Use of routine variance reporting meetings to identify and track cost performance.
  - e. Identify indicators that would support earlier corrective action to improve overall project and program performance.
  - f. Use of existing project management-related reporting.
  - g. Development of new project management-related reporting.
  - h. Evaluation of using additional cost analysts and cost engineers, relative to current resource commitments.
  - i. Tracking costs and exceptions.
  - j. Maintenance of an approval log, including for contractual pay items.
  - k. Evaluation of a mechanism to allow reporting of rejected pay items.

**WASHINGTON GAS'S RESPONSE**

**11/01/2019**

- A.**
- a. The CPSM department develops monthly dashboards to capture and analyze actual versus planned performance, measured in both dollars and units completed. These dashboards are presented in ARP Governance meetings on a regular basis. CPSM will continue to capture and communicate such metrics to the cross functional team to

improve program performance as well as to the Executive Governance Committee.

The Company utilizes Spend and Unit reports to capture main and service footages installed and retired, the number of services replaced/transferred, and the costs associated with each on a program level. The Spend and Unit report also displays the percentage of construction that has been completed and recorded.

The Company has routine variance reporting meetings to identify and track performance in terms of major cost drivers, root causes, and appropriate corrective actions. This will also provide additional indicators that would support corrective action in an effort to improve overall project and program performance. The Company continues to utilize and develop routine reporting common to project management related to PROJECTpipes to assist with ongoing cost management and unit completion.

These reports provide detailed estimate vs. actual costs and units to multiple levels of the organization.

- b. Washington Gas created a Construction Management team with a dedicated PROJECTpipes Project Manager. The Company hired a Construction Management Manager in April 2019 and a PROJECTpipes Project Manager in August 2019. The Project Manager will monitor and evaluate project scope, schedules, variances, etc. Please refer to FC-1154 OPC DR 6-16 Attachment 01 for the Project Manager Job Description.
- c. Enhancement of Washington Gas' insight into individual projects and accountability will be accomplished by the PROJECTpipes Project Manager and detailed on the Project Implementation Plan, (PIP) planned to be revised and published by March 2020. The Project Manager participates in variance reporting meetings and bi-weekly PROJECTpipes workload meetings to determine potential deviations from estimated costs, expected units, and scheduling discrepancies due to existing field conditions, customer coordination issues, weather, etc. which support cost management and assists in the identification of cost performance issues.
- d. The Company currently utilizes variance reporting meetings to identify and track cost performance as stated in subpart (a) above.
- e. Variance meetings monitor performance at both the project and program level. Individual projects that trend above the original cost

estimate can be identified and reviewed at a pay item level to determine where and why the discrepancies occurred.

- f. See Response to subpart (a) above.
- g. The Company has enhanced the variance reports to include additional project level detail and maintains workload meetings with the Contractors to manage at an individual project level.
- h. Washington Gas has hired a new Project Manager assigned to PROJECTpipes and is in the process of enhancing existing processes to improve analysis of PROJECTpipes performance and costs through this position. The Company expects that this will enhance cost performance and management insight into individual projects and accountability on PROJECTpipes once fully implemented.

Washington Gas will discuss and consider additional cost analysts and cost engineers to the extent these costs are recovered through the PROJECTpipes surcharge, consistent with existing resources in engineering and construction planning and oversight dedicated to PROJECTpipes.

- i. See the response to subsections (a) and (e) above.
- j. The Company will continue to track costs and exceptions and will continue to maintain the pre-approval log. The Company has implemented a system for tracking the pre-approval of pay items per our contracts.
- k. The Company cannot make a recommendation at this time for a pay item rejection tracking mechanism. The Company is willing to evaluate a mechanism to allow reporting of rejected pay items.

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Director - Construction Program Strategy and Management



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OPC DATA REQUEST NO. 6

QUESTION NO. 6-18

- Q.** Refer to the Audit at pages 85-86, which recommends that WGL develop a process for "regularly measuring planned and actual expenditures to production." For each of the related recommendations listed below, please (i) explain whether and how the CPSM monthly PROJECTpipes dashboard satisfies the recommendation; (ii) if the CPSM dashboard does not satisfy the recommendation, explain whether the recommendation will be implemented through another existing program or process; and (iii) explain whether WGL agrees with the recommendation:
- a. Management should project final costs (for each 5-Year Window and through the end of the program) at least twice each year, starting with current unit costs escalated.
  - b. Management should identify the projects that will not be completed after spending \$110 million.
  - c. Management should identify the cost impacts of the carryover (*i.e.*, the cost of addressing uninstalled projects from the plan).
  - d. Management should determine how to design a forward-looking annual expenditure pace that will provide an acceptable but affordable pace for remediation.

**WASHINGTON GAS'S RESPONSE**

11/01/2019

- A.**
- a. The Company's current monthly dashboards track the main and service installation against the 5-year program estimates as well as the spend to date versus the 5-year program spend. The Company currently has no plans to amend this process.

- b. The Company has identified projects that will not be completed after spending \$110 million in the Reconciliation Report filed on October 21, 2019.
- c. The Company provides an update of expenditures for each carryover project submitted to the Commission on the Annual Project List. Washington Gas plans to maintain the use of multi-year projects to manage construction efficiencies and execution of PROJECTpipes.
- d. The Company is evaluating forecasting techniques to track PROJECTpipes expenditures on a project and program level.

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**Director - Construction Program Strategy and Management**



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**OPC DATA REQUEST NO. 6**

**QUESTION NO. 6-22**

- Q.** Refer to the Audit at page 106, which recommends that WGL develop a master Program schedule and assess variance control measures on an ongoing basis. For each Audit recommendation listed below, please (i) identify with specificity which of WGL's current practices satisfies this recommendation, and explain how each current practice satisfies the recommendation; (ii) state whether WGL has plans to implement any new practices to satisfy this recommendation, and explain how each new practice satisfies the recommendation; (iii) provide a planned effective date for any new measures that WGL plans to undertake to meet the recommendation; and (iv) explain whether WGL agrees with the recommendation:
- a. Adopt a formal process for the generation of formal schedules and reports.
  - b. Adopt a formal process for assigning clear, focused accountability for schedule performance.
  - c. Formalize process for assigning accountability for Program schedule status.
  - d. Formalize process for assigning accountability for the schedule variance analysis at the project level.
  - e. Formalize process for assigning accountability for the schedule variance analysis at the Program level.
  - f. Formalize a process for assigning accountability for identifying required actions to address unacceptable delays.
  - g. Establish a scheduling procedure to document the process and communicate management expectations about schedule performance and include the scheduling procedure in the updated Program Implementation Plan.



**WASHINGTON GAS'S RESPONSE**

11/01/2019

**A.**

- a. The Company provides a schedule for each project submitted to the Commission on the annual project lists. Additionally, the Company's Construction and CPSM teams meet monthly to discuss program workload, status, and schedule variances.
- b. Currently, the Construction Manager and Project Manager are expected to maintain schedule performance and schedule status at a project level. The Project Manager will assist in moving projects through the established processes, which includes identifying required actions to address delays. The Program Implementation Plan ("PIP") will further document the roles as related to schedule performance.
- c. The CPSM group has responsibility for reporting the schedule status and tracking the reasons for variance at a program level. The PIP will further document the roles as related to schedule status.
- d. See the response to OPC DR 6-22 subpart (b).
- e. See the response to OPC DR 6-22 subpart (c).
- f. See the response to OPC DR 6-22 subpart (b).
- g. See the response to OPC DR 6-8 subpart (b).

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OPC DATA REQUEST NO. 6

QUESTION NO. 6-21

- Q.** Regarding the Audit at page 109, which recommends that WGL perform a comprehensive study to determine the benefits of internalizing work that is currently being performed by contractors:
- a. Has WGL performed a cost-benefit analysis to determine the costs and benefits of internalizing some level of the workforce? If yes, please provide that analysis.
  - b. Has WGL performed any other analysis to determine the benefits and drawbacks of internalizing some level of the workforce? If yes, please provide that analysis.

**WASHINGTON GAS'S RESPONSE**

11/01/2019

**A.**

- a. The Company has not performed such a study.
- b. WGL performed a qualitative review of internalizing some level of the workforce. WGL reaffirmed the approach of using a contracted work force for planned construction activities, including PROJECT*pipes*. Our reaffirmation is based on evaluating industry and workforce trends given the continued high demand for this skill set. Our strategy remains to utilize contractor resources with planned construction activities where the Company retains flexibility with respect to workload uncertainty (for example, the extended time table requested renewal of PROJECT*pipes*) that would not exist with an internal workforce. This uncertainty around work volume led Washington Gas to conclude a further expansive quantitative analysis would not provide value at this juncture.

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**OPC DATA REQUEST NO. 6**

**QUESTION NO. 6-24**

- Q.** Refer to the Audit at 111, which recommends that WGL regularly prepare comprehensive and effective ground-up analyses of crew requirements:
- a. Describe WGL's long-term ground-up assessments in detail. Identify the factors that WGL considered, the calculus that was employed to determine work-crew needs, and the results of its long-term assessments.
  - b. Describe WGL's real-time assessments in detail. Identify the factors that WGL considered, the calculus that was employed to determine work crew needs, and the results of its real-time assessments.
  - c. Specifically identify and describe which of WGL's current practices satisfy this recommendation; explain how the current practice satisfies this recommendation; and state whether the practice was in effect during the Audit period.
  - d. Specifically identify and describe the practices that WGL plans to adopt to satisfy this recommendation; explain how the planned practice will satisfy the recommendation; and provide an effective date for each practice that WGL plans to adopt to satisfy this recommendation.

**WASHINGTON GAS'S RESPONSE**

11/01/2019

- A.**
- a. Concurrent with corporate long-range planning, the Construction team evaluates impact of plans on anticipated qualified resource needs. Budget submissions cover a variety of work types and involve estimating funding given uncertainties in work volume and future costs. Crew planning is performed to ensure the aggregation of multiple estimates from various

bodies of work across our system do not create a mismatch with available qualified resources.

- b. Evaluating resource plans occurs concurrent with Company financial management/planning processes. Adjustments are made as needed to maintain balance between qualified resources, financial plans, and work volumes.
- c. Crew planning processes reviewed and referenced by Liberty were in place for PROJECT *pipes* Years 3 and 4. Washington Gas' current practice of recasting long-range resource plans inclusive of all bodies of work across the entire system and tracking against these targets to inform interim decision making satisfies the recommendation.
- d. The Company's existing practices satisfy the recommendation to perform resource planning.

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**OPC DATA REQUEST NO. 6**

**QUESTION NO. 6-27**

- Q.** Refer to the Audit at page 121, which recommends that WGL "much more actively report program progress, problems, and action plans to senior leadership." For each of the related practices listed below, (i) describe the practice in detail, including how it satisfies the Audit recommendation (ii) identify when and how WGL initially implemented each of these practices; (iii) explain whether these practices were in effect during the Audit period; and (iv) if the protocols have not been implemented, explain when and how WGL will begin implementing the protocols:
- a. Use of a matrix organizational approach to perform PROJECTpipes work.
  - b. Development of an Accelerated Replacement Programs Operating Committee.
  - c. Development of an ARP Executive Steering Committee.
  - d. The CSPM's practice of monitoring the PROJECTpipes work and reporting it to the ARP Executive Steering Committee.
  - e. Development of an ARP Governance Committee.
  - f. Use of an Executive Report to provide an annual update on how WGL's management has addressed PROJECTpipes-related issues.
  - g. Use of a 3-Year Management Audit to review WGL's management involvement in PROJECTpipes.
  - h. Use of an annual assessment of Agreed Upon Procedures.

**WASHINGTON GAS'S RESPONSE**

11/01/2019

- A.**
- a. Using a matrix organization approach, individuals within the Company work together amongst their existing reporting hierarchies. The matrix includes required resources from other Company departments to complete key processes and is reflective of the fact that most construction-related processes should not differ based on eligibility within PROJECTpipes. The matrix resources help form the Accelerated Replacement Programs



Operating Committee ("ARPOC"). These practices were in effect at the start of PROJECTpipes, and in effect prior to the Audit period.

- b. As stated in item a. above, ARPOC serves the key role of providing the cross functional oversight, issue identification/resolution and coordination of the information reporting aspects of the Washington Gas accelerated replacement programs (ARP). The ARPOC has been in place at the start of PROJECTpipes, and in effect prior to the Audit period.
- c. The responsibilities of the Executive Steering Committee are to make decisions and/or approve recommendations above the authority of the Operating Committee and to provide guidance to the Operating Committee as it relates to all ARP programs. The Executive Sponsor of the Steering Committee serves as the primary touch point for the Operating Committee as the functional responsibilities/accountabilities for budgeting and planning 5-year plans and annual spend, procuring contractor resources, performing risk analysis and prioritization, replacement engineering and construction planning, construction execution, contractor management and construction oversight, and recordation/mapping all occur with that role's division. That Executive Sponsor engages the members of the Steering Committee when appropriate. The ARP Executive Steering Committee has been in place at the start of PROJECTpipes, and in effect prior to the Audit period.
- d. The CPSM department develops a monthly dashboard to capture and analyze actual versus planned performance, measured in both dollars and units completed. CPSM will continue to capture and communicate such metrics to the ARP Executive Steering Committee. The CPSM group was formed in May 2017, and dashboards were first used in December 2017, which is inside the Audit period.
- e. The Company's ARP Governance Committee routinely discusses progress, issues, and action items related to PROJECTpipes. Both the CPSM and ARP Governance Committee activities assist senior leadership in remaining significantly engaged with PROJECTpipes and other Washington Gas accelerated pipe replacement programs. The ARP Governance Committee has been in place at the start of PROJECTpipes and in effect prior to the Audit period.
- f. The CPSM group provides a monthly Executive Presentation that provides dashboards, program accomplishments and updates, as well as other slides that satisfy how the Company's management has addressed PROJECTpipes-related issues. These Executive Presentations have been in effect since 2017, and prior to the Audit period.

- g. The 3-Year Management Audit to review Washington Gas' management involvement in PROJECTpipes has been satisfied in April 2019 by the Liberty Consulting Group. The resulting work product is a comprehensive and detailed assessment of the first four (4) years of the Company's accelerated pipe replacement program.
- h. As previously discussed with the parties, Washington Gas is committed to an annual update either in the form of an Executive Report or Technical Conference, after the end of each plan year, to update the parties on what the Company has observed with course corrections and strategic issues the Company faced and how these issues were addressed.

**SPONSOR:** Wayne A. Jacas, PMP  
Director - Construction Program Strategy and Management



**PUBLIC SERVICE COMMISSION OF THE DISTRICT OF COLUMBIA**

**WASHINGTON GAS LIGHT COMPANY**

**FORMAL CASE NO. 1154**

**WASHINGTON GAS'S RESPONSE  
AND/OR NOTICE OF OBJECTION/UNAVAILABILITY TO  
THE OFFICE OF PEOPLE'S COUNSEL**

**OPC DATA REQUEST NO. 6**

**QUESTION NO. 6-29**

- Q.** Refer to the Audit at page 133, which recommends that WGL work with other underground utilities to update construction maps along planned replacement routes:
- a. Identify with specificity the times when WGL scheduled construction to align with another agency's or utility's construction project.
  - b. For each project identified in response to subpart (a) of this question:
    - i. Explain how the construction costs were apportioned among the coordinating entities.
    - ii. Explain how WGL prioritized the safety of its distribution system during these coordination efforts.
    - iii. Provide estimated cost savings related to the fact that WGL was able to schedule work to align with another agency's or utility's construction project.

**WASHINGTON GAS'S RESPONSE**

11/01/2019

**A.**

- a. Please see the Company's response to FC1154 OPC DR 2-16, FC1154 OPC DR 3-50, and FC1154 OPC DR 3-52. The Company indicates coordination with other agencies or utilities with the AOP label on its annual project list.
- b. See the responses below:

- i. Shared construction costs are considered on an individual project basis. Coordination with PEPCO Grid, PEPCO PLUG, and others allows for shared paving and final restoration costs which are apportioned in accordance with each project scope and limits of disturbance.
- ii. Washington Gas prioritized the safety of its distribution system by coordinating cast iron main replacements with the work being completed by outside agencies. Due to the nature of cast iron main, we prefer that heavy construction not be completed near or around our cast iron mains. The use of heavy machinery can cause cracks and leaks in the distribution main requiring Field Operations to repair or refer the pipe for replacement. Coordinating planned outside agency work with cast iron main replacements can limit the occurrence of leaks on these mains and where possible, bring in a medium pressure distribution system to the customers.
- iii. Washington Gas has realized cost savings by coordinating with other utilities (*i.e.*, avoiding paving and restoration costs). The Company does not capture these avoided costs. These avoided costs would vary from project to project. However, the Company estimates it to range from approximately 5% to 15% of the cost of a given project.

**SPONSOR:** Wayne A. Jacas, PMP  
Director - Construction Program Strategy and Management



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OPC DATA REQUEST NO. 7

QUESTION NO. 7-16

- Q.** Reference Exhibit WG (2B)-1 at page 1 of Witness Stuber's Supplemental Direct Testimony where he states, "The purpose of this report is to provide details on the five transmission system PIPES 2 programs proposed by Washington Gas".
- a) Please prepare a table of all transmission projects contained in the proposed five transmission systems, listing whether or not each project is entirely located outside of the District.
  - b) Please specify the total amount of the estimated transmission costs proposed to be charged to the District which are for projects located entirely outside of the District.

**WASHINGTON GAS'S RESPONSE**

05/18/2020

- A.**
- a) See the Attachment.
  - b) The total amount of estimated transmission costs for projects that were selected to reduce risk and enhance the safety and reliability of the Company's transmission system which serves District of Columbia customers that are located entirely outside of the District is \$21,882,000.

SPONSOR: Aaron C. Stuber, PE  
Director - Technical Engineering Services

### DC PIPES 2 Transmission Project Locations

Program	Project	Project Location
1 - Pipe Replacement	Strip 1	Virginia
1 - Pipe Replacement	Strip 6	Virginia
2 - Remote Control Valve Installation	RCV Strip 14, Valve 2	Maryland
2 - Remote Control Valve Installation	RCV Strip 14, Valve 5	Maryland
2 - Remote Control Valve Installation	RCV Strip 2, Valve 18	Virginia
2 - Remote Control Valve Installation	RCV Strip 15, Valve 13	Maryland
3 - Block Valve Replacement	Strip 1, Valve 13 / Strip 6, Valve 1 / Strip 5, Valve 1	Virginia
3 - Block Valve Replacement	Strip 6, Valve 2	Virginia
3 - Block Valve Replacement	Strip 6, Valve 12	Virginia
3 - Block Valve Replacement	Strip 4, Valve 7	Virginia
3 - Block Valve Replacement	Strip 4, Valve 9	Virginia
4 - Valve Riser Replacement	Strip 23, Valve 9	District of Columbia
4 - Valve Riser Replacement	Strip 9, Valve 18	Maryland
5 - Replacements to Enable the Use of In-line Inspection	Strip 24 - 12" x 12" x 12" Tee	Maryland
5 - Replacements to Enable the Use of In-line Inspection	Strip 24 - Permanent receiver	Maryland
5 - Replacements to Enable the Use of In-line Inspection	Strip 24 - 12" Mueller Bottom Out Line Stopper (2)	Maryland
5 - Replacements to Enable the Use of In-line Inspection	Strip 15 - 24" 300# ASA PLV-WLD END (VLV 13 - STRIP 15) and 24" TEE (90 DEG) W/ 16" REDUCER	Maryland
5 - Replacements to Enable the Use of In-line Inspection	Strip 14 - 24" 600# TDW Bottom Out hot tap	Maryland
5 - Replacements to Enable the Use of In-line Inspection	Strip 14 - Permanent launcher, (1) 24" Tee / 24" x 24" Tee / 24" TEE - WPHY 60	Maryland
5 - Replacements to Enable the Use of In-line Inspection	Strip 14 - 24" 400# ANSI SPV (VLV 5 - STRIP 14)	Maryland
5 - Replacements to Enable the Use of In-line Inspection	Strip 15 - 24" 400# ASA WLD-VLV & YOKE (VLV 12 - STRIP 15)	Maryland
5 - Replacements to Enable the Use of In-line Inspection	Strip 14 - 24" 400# ANSI SPV (VLV 2 - STRIP 14) / 24" 400# ANSI SPV (VLV 3 - STRIP 14)	Maryland
5 - Replacements to Enable the Use of In-line Inspection	Strip 15 - 24" 300# ASA PLV-WLD END (VLV 15 - STRIP 15)	Maryland
5 - Replacements to Enable the Use of In-line Inspection	Strip 15 - 24" 45DEG VERT, 2.5 ft pipe, 24" 45DEG VERT	District of Columbia
5 - Replacements to Enable the Use of In-line Inspection	Strip 15 - 24" 45DEG VERT, 2.5 ft pipe, 24" 45DEG VERT	District of Columbia
5 - Replacements to Enable the Use of In-line Inspection	Strip 15 - 24" 400# ASA PLV-WLD END (VLV 23 - STRIP 15), Receiver	District of Columbia
5 - Replacements to Enable the Use of In-line Inspection	Strip 15 - 24" 43 DEG VERT OVER BEND T.T., 2.5 ft pipe, 24" 43 DEG VERT OVER BEND T.T. (2)	District of Columbia
5 - Replacements to Enable the Use of In-line Inspection	Strip 15 - 24" 45DEG VERT, 2.5 ft pipe, 24" 45DEG VERT	District of Columbia
5 - Replacements to Enable the Use of In-line Inspection	Strip 15 - 24" 45DEG VERT, 2.5 ft pipe, 24" 45DEG VERT	District of Columbia
5 - Replacements to Enable the Use of In-line Inspection	Strip 15 - 24" 45DEG VERT, 2.5 ft pipe, 24" 45DEG VERT	District of Columbia
5 - Replacements to Enable the Use of In-line Inspection	Strip 4 - Valve 12 Plug valve, and two 24"x24" tees	Virginia
5 - Replacements to Enable the Use of In-line Inspection	Strip 4 - Valve 1 Plug valve, and 24"x24" tee	Virginia
5 - Replacements to Enable the Use of In-line Inspection	Strip 4 - Valve 2 plug valve, three 24"x12" tees	Virginia
5 - Replacements to Enable the Use of In-line Inspection	Strip 4 - Valve 3 24" plug valve	Virginia
5 - Replacements to Enable the Use of In-line Inspection	Strip 4 - 2 90 deg vertical 6' 4" offset, with Tees and connection to Strip 20	Virginia
5 - Replacements to Enable the Use of In-line Inspection	Strip 4 - Valve 10 24" Plug valve, 24"x12" tees (3)	Virginia
5 - Replacements to Enable the Use of In-line Inspection	Strip 4 - 4 45deg vertical elbows	Virginia





PUBLIC SERVICE COMMISSION OF THE DISTRICT OF COLUMBIA

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THE OFFICE OF PEOPLE'S COUNSEL

OPC DATA REQUEST NO. 7

QUESTION NO. 7-13

**Q.** Reference Witness Price Supplemental Direct Testimony at page 7.

- a) Has the Company identified potential service providers to administer the ALD technology?
- b) Explain how the Company estimated the cost to administer the ALD pilot program.

**WASHINGTON GAS'S RESPONSE**

05/18/2020

**A.**

- a) Yes, in preparation for the submitted Program 9 request, Washington Gas has identified potential service providers for ALD technology.
- b) In order to administer an ALD pilot program, Washington Gas prepared a cost estimate that includes the following expenses: ALD equipment, delivery vehicle, yearly software licensing, vehicle/equipment maintenance, and manhours associated with operating the vehicle, grading leaks, analyzing the data, and managing the pilot program as a whole.

SPONSOR: Stephen J. Price  
AVP – Safety, Quality & Systems Protection



PUBLIC SERVICE COMMISSION OF THE DISTRICT OF COLUMBIA

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OPC DATA REQUEST NO. 7

QUESTION NO. 7-51

- Q.** Refer to Witness Price's Supplemental Direct Testimony, Exhibit WG (D) at page 7, lines 8-11.
- a. Please identify all documents and analysis relied on and that support his testimony that the ALD cost estimate is \$2 million.
  - b. Please produce all documents identified in the response to subpart a.

**WASHINGTON GAS'S RESPONSE**

05/18/2020

- A.** a). In preparation for the ALD pilot program, Washington Gas has engaged with a potential service provider in order to provide an estimate for expenses anticipated to be incurred over the 5-year term. The summary of costs is provided in (b) below.

b)

**Equipment Costs**

ALD	400,000
Vehicle / Equipment	<u>100,000</u>
	500,000

**Annual Operating Costs**

Equipment Operator	100,000
Equipment Maintenance	10,000
Leak Grading	100,000
Data Analytics	25,000
Licensing	50,000
Project Management	<u>15,000</u>
	300,000

SPONSOR: Stephen J. Price  
AVP – Safety, Quality & Systems Protection



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OPC DATA REQUEST NO. 7

QUESTION NO. 7-52

- Q.** Refer to Witness Price's Supplemental Direct Testimony, Exhibit WG (D) at page 7, lines 17-18.
- a. Identify the "relevant stakeholders" with whom the report will be shared.
  - b. Confirm that the Office of the People's Counsel is a "relevant stakeholder" for purposes of receiving the report.
  - c. Explain why the Company does not propose to submit the report to the Commission.

**WASHINGTON GAS'S RESPONSE**

05/18/2020

- A.**
- a. The "relevant stakeholders" include OPC, all intervenors to Formal Case No. 1154 and other entities which have expressed an interest in advance leak detection (ALD) and leak quantification methodologies to Washington Gas in the Company's various formal cases and community discussions.
  - b. OPC is a relevant stakeholder for purposes of Mr. Price's testimony.
  - c. Washington Gas does not oppose filing the report with the Commission.

SPONSOR: Stephen J. Price  
AVP – Safety, Quality & Systems Protection



PUBLIC SERVICE COMMISSION OF THE DISTRICT OF COLUMBIA

WASHINGTON GAS LIGHT COMPANY

FORMAL CASE NO. 1154

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OPC DATA REQUEST NO. 7

QUESTION NO. 7-48

- Q.** Reference Exhibit WG (2A)-2 at 4, Recommendation 9. Does the Company believe its response satisfies the Recommendation to “evaluate the institution of a work completion condition to expedited recovery of program expenditures?” Please explain the basis of your answer.

**WASHINGTON GAS'S RESPONSE**

05/18/2020

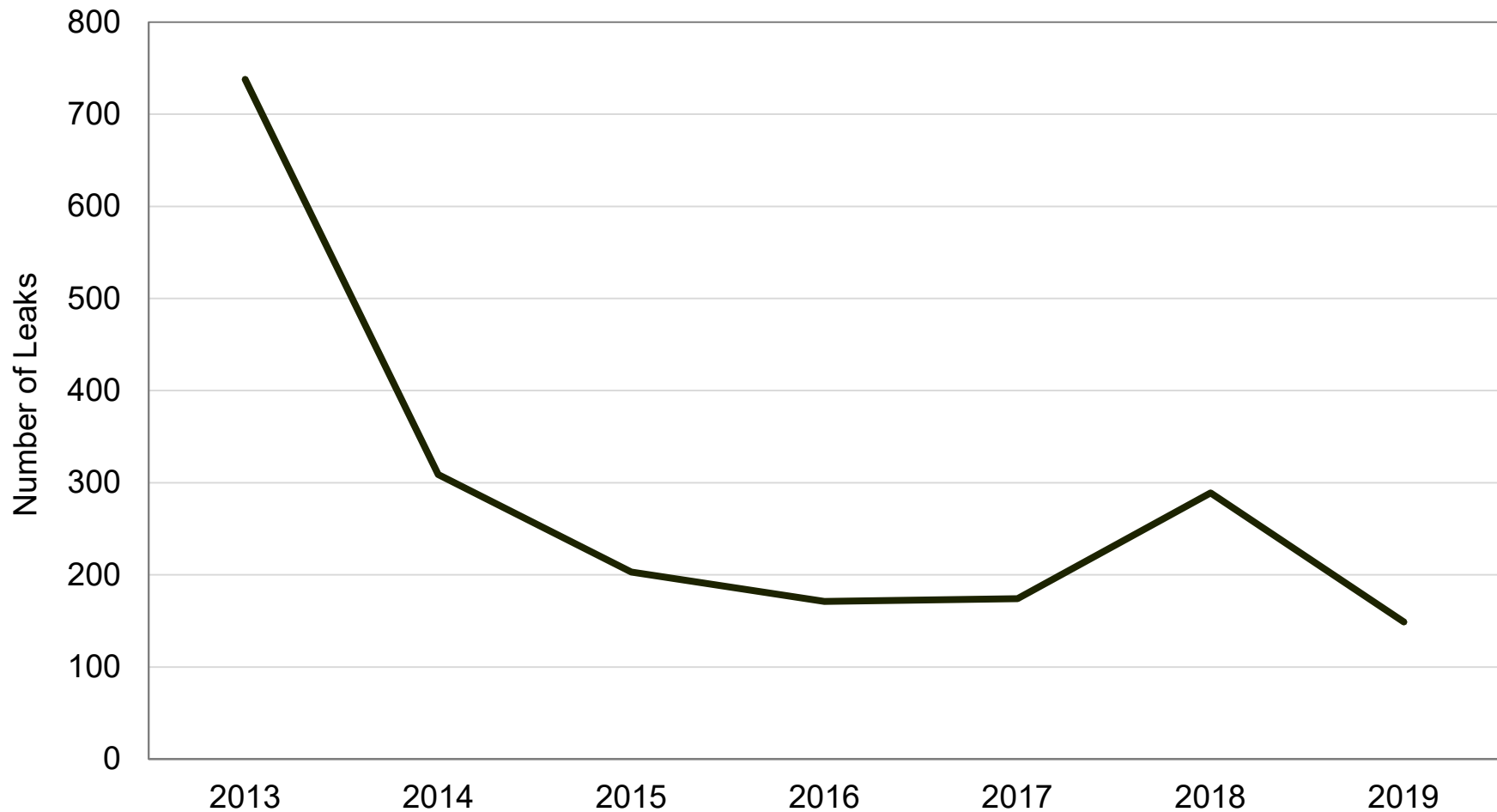
- A.** The parties in the merger case, Formal Case No. 1142, as reflected in Commission Order No. 19396, agreed to Commitment No. 72 which was put in place for cost management and to affect the Company's ability to recover “excess costs” in PROJECT*pipes*. Therefore, Merger Commitment No. 72 satisfies the recommendation to “evaluate the institution of a work condition to expedited recovery of program expenditures.” Merger Commitment No. 72 prevents the Company from recovering the PROJECT*pipes*-related costs on these expenditures that exceed 120% of the rolling two-year average unit costs. Therefore, the PROJECT*pipes*-related costs resulting from the expenditures are not included in the PROJECT*pipes* surcharge but can be submitted for Commission approval in a future base rate proceeding.

SPONSOR: Wayne A. Jacas, PMP  
Director – Construction Program Strategy and Management





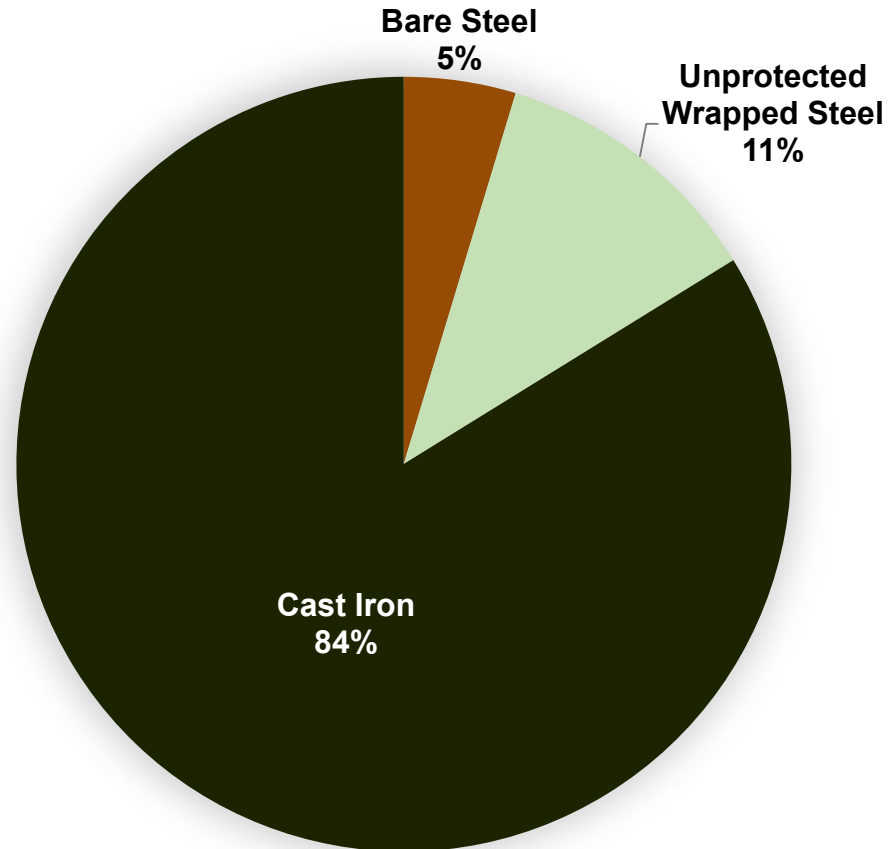
## Number of Leaks in Inventory Washington Gas D.C.



Source: U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration, PHMSA Form 7100.1-1, available at: <https://www.phmsa.dot.gov/data-and-statistics/pipeline/gas-distribution-gas-gathering-gas-transmission-hazardous-liquids>.



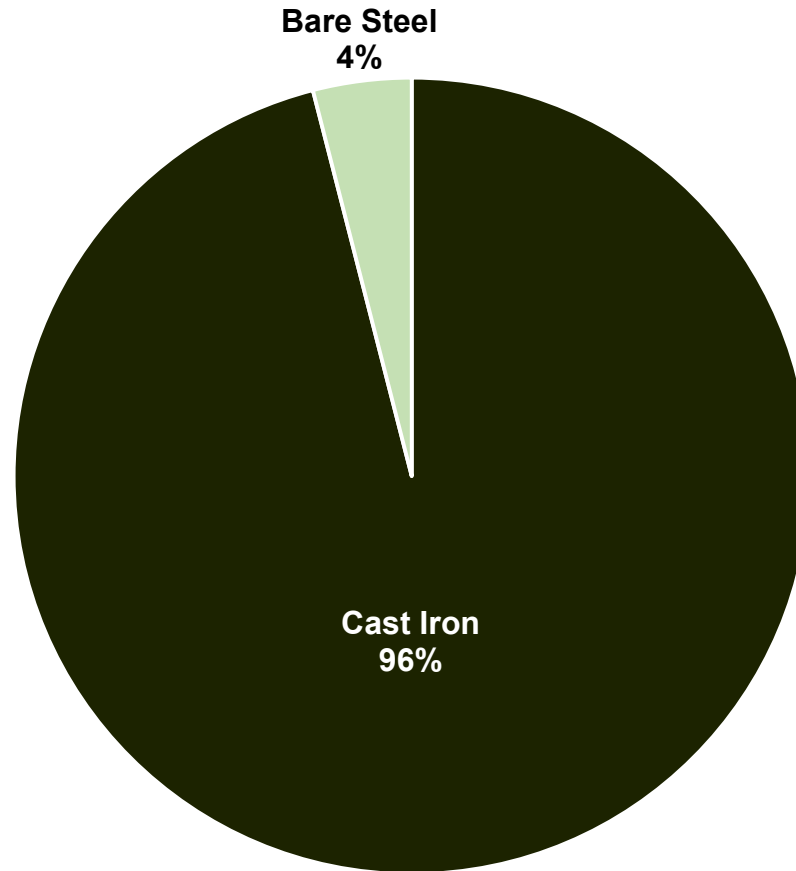
**Remaining Miles of Main to be Replaced  
(not including contingent main)**



Source: U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration, PHMSA Form 7100.1-1, available at: <https://www.phmsa.dot.gov/data-and-statistics/pipeline/gas-distribution-gas-gathering-gas-transmission-hazardous-liquids>.



**Fraction of Main Materials in Top 50 Most Risky Main Segments to be Replaced  
(as calculated by Optimain Model)**





## Decreases in Cast Iron Mileage over Last Ten Years (Eastern Utilities)

State	Utility	Miles of Cast Iron		Decrease		Years to Eliminate Cast Iron @ Ten-Year Average Decrease
		2009	2019	(miles)	(%)	
NJ	New Jersey Natural Gas Co	77	0	77	100.0	0
VA	Columbia Gas Of Virginia Inc	10	0	10	100.0	0
NY	Orange & Rockland Utility Inc	24	0	24	100.0	0
VA	Roanoke Gas Co	39	0	39	100.0	0
VA	Atmos Energy Corporation - KY/Mid-States (Mid-States)	1	0	1	100.0	0
MD	Chesapeake Utilities Corporation	2	0	2	100.0	0
NY	Rochester Gas & Electric Corp	256	0	256	100.0	0
NJ	South Jersey Gas Co	91	0	91	99.9	0
VA	Virginia Natural Gas	12	0	12	99.2	0
MD	Columbia Gas Of Maryland Inc	93	1	92	98.8	0
NY	Niagara Mohawk Power Corp	546	242	304	55.7	8
DE	Delmarva Power & Light Company	668	317	350	52.5	9
NY	National Fuel Gas Distribution Corp - New York	685	338	347	50.7	10
NJ	Elizabethtown Gas Co	378	195	183	48.5	11
NY	Keyspan Energy Delivery - Long Island	421	218	203	48.1	11
MD	Washington Gas Light Co	107	56	51	47.3	11
PA	UGI Utilities, Inc	97	53	44	45.8	12
PA	PECO Energy Co	75	44	31	41.6	14
NY	Keyspan Energy Delivery - NY City	811	539	272	33.5	20
NY	Consolidated Edison Co Of New York	1728	1198	530	30.7	23
PA	Peoples Natural Gas Company LLC	1330	958	372	28.0	26
NY	Central Hudson Gas & Electric Corp	110	80	30	27.5	26
NJ	Public Service Electric & Gas Co	4284	3245	1039	24.3	31
VA	Washington Gas Light Co	1354	1068	286	21.2	37
MD	Baltimore Gas And Electric Company	17	14	3	16.4	51
<b>DC</b>	<b>Washington Gas Light Co</b>	<b>430</b>	<b>405</b>	<b>25</b>	<b>5.8</b>	<b>162</b>

Source: U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration, PHMSA Form 7100.1-1, available at:  
<https://www.phmsa.dot.gov/data-and-statistics/pipeline/gas-distribution-gas-gathering-gas-transmission-hazardous-liquids>.



**CERTIFICATE OF SERVICE**

**Formal Case No. 1154, In the Application of Washington Gas Light Company for Approval of PROJECTpipes 2 Plan**

I certify that on June 15, 2020, a copy of the *Office of the People's Counsel for the District of Columbia's Direct Testimony and Exhibits* was served on the following parties of record by hand delivery, first class mail, postage prepaid or electronic mail:

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