

**STATE OF NEW HAMPSHIRE  
PUBLIC UTILITIES COMMISSION**

**DG 18-064**

**Liberty Utilities (EnergyNorth Natural Gas) Corp.**

**d/b/a Liberty Utilities**

**Cast Iron Bare Steel Replacement Program**

**Direct Testimony**

**of**

**Randall S. Knepper  
Director – Safety Division**

**June 18, 2018**

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1 **Q. Please state your name, occupation and business address.**

2 A. My name is Randall S. Knepper. I am employed as the Safety and Security Director of the  
3 Safety Division for the New Hampshire Public Utilities Commission. My business address is  
4 21 S. Fruit Street, Suite 10, Concord, New Hampshire 03301.

5 **Q. Please summarize your education and professional work experience.**

6 A. I received a Bachelor of Science in Mechanical Engineering from University of Rochester  
7 and a Master of Science in Civil Engineering from the University of Massachusetts. I am a  
8 licensed Professional Engineer in the State of New Hampshire, License No. 9272. For  
9 continuing education, I have completed 21 Technical Training Courses and 22 Online  
10 Training Sessions provided by the Training and Qualification Center of the Pipeline and  
11 Hazardous Materials Safety Administration (PHMSA). See RSK Attachment 1.

12

13 I have been the Director of Safety for the New Hampshire Public Utilities Commission since  
14 December 2004. Prior to that I was an Environmental Consultant and Business Development  
15 Manager at The Smart Associates, Environmental Consultants, Inc., located in Concord, New  
16 Hampshire. For 16 years I was employed at a local gas distribution company. My previous  
17 work experience included a number of Business and Operations roles at Keyspan Energy  
18 Delivery New England and EnergyNorth Natural Gas Inc. (Keyspan, EnergyNorth),  
19 including Key Account Executive, Commercial & Industrial Sales Manager, Sales Engineer,  
20 Senior Engineer, Staff Engineer, and CAD Supervisor. For many of those years, I designed  
21 natural gas distribution systems, recommended capital improvement projects, recommended  
22 system expansions, wrote Operations and Maintenance procedures, and oversaw construction  
23 projects. While performing the duties of each of these occupations I was responsible for  
24 compliance related to applicable local, state, and federal codes. Prior to my utility

1 experience I worked at Westinghouse Electric designing high voltage transmission lines as a  
2 Project Engineer.

3  
4 In addition, I've served as Staff Engineer for the New Hampshire Site Evaluation Committee  
5 prior to its most recent reorganization in 2014 and currently serve as subject matter expert for  
6 the New Hampshire Advisory Council on Emergency Preparedness and Security. My  
7 professional work experience spans more than 30 years.

8 **Q. Are you affiliated with any professional organizations?**

9 A. Yes. I am a member of the Association of Energy Engineers (AEE). I serve on multiple  
10 committees of the National Association of Pipeline Safety Representatives (NAPSR)  
11 including prior positions of Chair and Past Chair. I served as editor of each of the biennial  
12 editions of NAPSR's *Compendium of State Pipeline Safety Requirements & Initiatives*  
13 *Providing Increased Public Safety Levels Compared to Code of Federal Regulations*. I  
14 currently chair the Staff Pipeline Safety subcommittee of the National Association of  
15 Regulatory Commissioners (NARUC); I serve on the Common Ground Alliance  
16 Technology committee; I am appointed as a member of the Gas Technology Institute's  
17 Public Interest Advisory Committee; and I am a board member of the New Hampshire  
18 Public Works Standards and Training Council. Finally, I have testified before the United  
19 States Congress on pipeline safety issues.

20 **Q. What is the purpose of your testimony in this proceeding?**

21 A. The testimony is comprised of four primary sections identified as I through IV:

22 I. Provide an updated, succinct program history, including a brief synopsis of the Liberty  
23 Utilities (EnergyNorth Natural Gas) Corp ("the Company" or "Liberty") Cast Iron Bare

1 Steel Replacement (CIBS) replacement program since its inception in 2009. *[ See pages*  
 2 *6 through 12]*

3 II. Comment on Liberty’s CIBS program results for Fiscal Year 2018 (April 1, 2017 –  
 4 March 31, 2017), including the associated costs, including carry-over costs the Company  
 5 is seeking to recover in this proceeding; *[ See pages 13 through 23]*

6 III. Provide Staff’s assessment of the adequacy of Liberty’s CIBS plan for Fiscal Year 2019  
 7 (April 1, 2019, to March 31, 2019); *[ See page 24]* and

8 IV. Make recommendations regarding the Company’s replacement rate associated with its  
 9 CIBS Main Replacement Program going forward. *[ See pages 25 through 27]*

10

1 **I. HISTORICAL SYNOPSIS OF THE CAST IRON and BARE STEEL PROGRAM**

2 **Q. Would you please summarize the process the Safety Division has used to review**  
3 **Liberty's cast iron and bare steel replacement program since its inception?**

4 A. The interests of the Commission and its Safety Division have always been to ensure that the  
5 appropriate levels of safety are either maintained or improved upon, and that associated  
6 expenditure considerations result in the least cost impact to customers with minimal  
7 disruptions of municipal streets. Through the years the Safety Division has been actively  
8 engaged in its review of proposed replacements of leak prone pipes that the Company  
9 prioritizes in its annual plans. The review ensures that the Company does not select  
10 segments that are outside the limited scope of the CIBS program and includes verifying that  
11 municipal projects are not included in the segments selected. Other items that are not always  
12 initially excluded from these filings include abandonments, coated steel mains, inside meter  
13 relocations, and upsizing mains. A complete detail of the parameters of the CIBS program is  
14 included in docket DG 11-040, Liberty Utilities acquisition of EnergyNorth Natural Gas  
15 from National Grid, as memorialized in Attachment J, Section 20 of the Settlement  
16 Agreement in Order No. 25,370 (May 30, 2012). A copy of Attachment J, Section 20 is  
17 provided as RSK Attachment 2 in my testimony.

18 The Safety Division has generally encouraged Liberty to replace its low pressure, cast iron  
19 mains with high pressure mains when appropriate. The Safety Division regularly  
20 incorporates field inspections of CIBS segments into its monitoring program. Our Staff  
21 reviews the Company's written reports on actual cutouts of certain segments of bare steel  
22 mains that have been replaced through this program. The CIBS Program requires physical  
23 cutouts of bare steel mains to be hand-delivered to the Safety Division for examination by its  
24 Staff. This feedback mechanism provides Staff with the tangible evidence that the selected

1 segments are appropriately chosen. Staff does not require physical cutouts of cast iron  
2 mains. Lastly, Staff reviews actual finalized expenditures and compares them to the  
3 previously submitted projections for the recently completed fiscal year.

4 **Q. What useful information is the Safety Division able to extract from written condition**  
5 **reports that are provided as part of the CIBS main replacement program?**

6 A. The condition reports provide the Safety Division with valuable pipeline integrity data,  
7 including pipeline wall thickness, pipeline age, soil conditions, system pressure, and location  
8 information of bare steel pipe segments related to various types and vintages of removed bare  
9 steel segments. These characteristics determine integrity and corrosion assumptions that are  
10 incorporated into subsequent planning. It is a delicate balance to weigh the need to replace  
11 aging piping systems as they near the undesirable condition at which leaks increase and  
12 mains break against premature replacement of pipes that have many years of useful life and  
13 pose little risk to the public. Since the program inception, Staff has continually seen deep  
14 pitting, seam cracks, holes, and other undesirable features of the bare steel mains. For FY  
15 2018, 7 projects required bare steel replacement that necessitated written condition reports,  
16 and 2 of the 7 bare steel pipe locations had 100% wall loss (i.e., holes). This indicates that  
17 the pipeline had far exceeded acceptable safety requirements and was leaking 24 hours a day,  
18 365 days per year, with ratepayers bearing the costs through the cost of gas adjustment  
19 recovery mechanism. The average age of these 7 selected bare steel main projects was 89  
20 years of service from installation to replacement. Since 2009, 55<sup>1</sup> individual reports have  
21 been completed regarding bare steel segments, which is an average of 5.5 per year. The  
22 average age of each segment removed is 85 years, excluding two reports where Liberty could

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<sup>1</sup> Liberty and its predecessor companies have provided 55 written reports to date. Two of the reports submitted were on coated steel segments in FY2010, thus only 53 were required. For 4 written reports Liberty did not identify age, in those cases staff assumed an age based on installation dates of nearby mains in the vicinity and reviewing service documentation.

1 not determine the age of the segment removed. See RSK Attachment 3 and RSK Attachment  
2 4 for additional details related to the CIBS program history.

3 **Q. Do certain municipalities have higher percentages of the cast iron and bare steel**  
4 **distribution pipe that are addressed as part of the CIBS program?**

5 A. Of the 30 communities served by Liberty Utilities gas distribution operation, only six have  
6 cast iron or bare steel segments that include leak prone or worn pipe remaining. As expected,  
7 the heaviest concentration is in the municipalities of Manchester, Nashua, and Concord.  
8 These communities began serving customers back in the 1800s and, as a result, have some of  
9 the oldest piping in the state. Liberty, in its most recent CIBS filing, reduced the amount of  
10 leak prone pipe from 93.18 miles for FY 2017 to 78.65 miles for FY 2018<sup>2</sup>. This 14.53 mile  
11 decrease includes 11.58 miles as a result of the CIBS program (11.55 miles replaced plus  
12 0.58 miles abandoned, less 0.53 miles related to coated steel and plastic mains.)<sup>3</sup>. The  
13 remainder of the 14.53 mile decrease is comprised of 2.95 miles<sup>4</sup> related to municipal work  
14 and Liberty's cast iron encroachment policy; both are considered beyond the scope of the  
15 CIBS program. Included in the 9.41 miles replaced is 3.04 miles of leak prone pipe that was  
16 upsized.

17 In addition to the CIBS filing, Liberty reports annually to the US DOT Pipeline Hazardous  
18 Material Safety Administration (PHMSA) and to the Safety Division the amount of linear  
19 pipeline of remaining Cast Iron and Bare Steel by pipe diameter and by division. The cities  
20 and towns with cast iron or bare steel pipes are listed in Figure 1 below.

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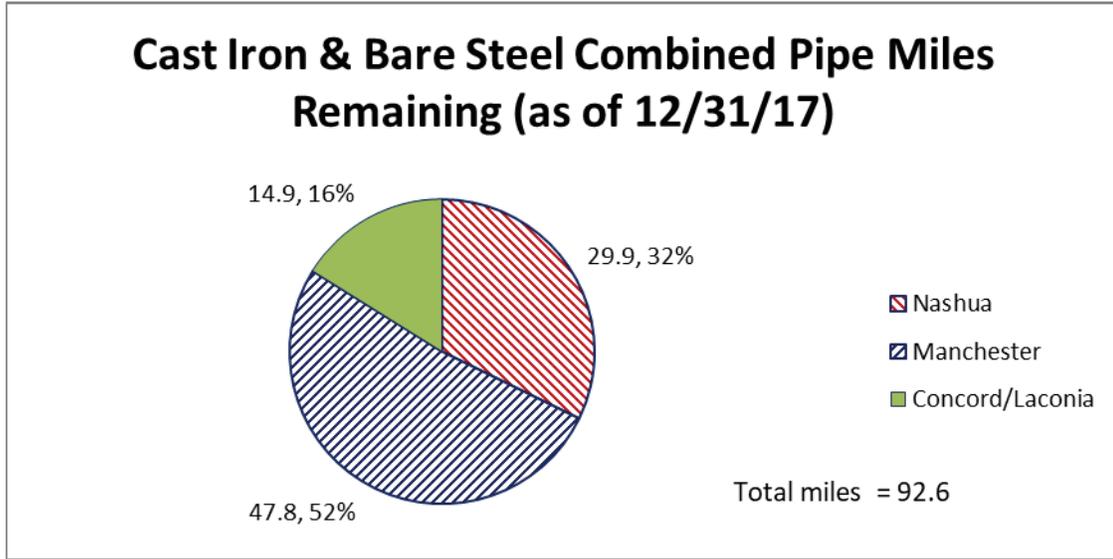
<sup>2</sup> The source of this mileage is Attachment DBS/CAM-1, page 4 of 4, Bates Page 061R (line 13) .

<sup>3</sup> The source is Attachment SDF-BRF-2 AJ57 Bates Page 044

<sup>4</sup> The source is SDF-BRF Testimony, Bates Page 009 line 5, and Attachment SDF-BRF-1, Bates Page 031

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Figure 1



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Figure 1 Notes:

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A. Southern Division CIBS areas include Nashua and some sections of Hudson.

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B. Central Division CIBS areas include Manchester and small sections of Goffstown.

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C. Northern Division CIBS areas include Concord, and Laconia.

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There is a slight difference in each community's percentage share of leak prone pipe between

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FY 2009 and FY 2018. Over time, Concord's share decreased by 9%, while Manchester's and

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Nashua's increased by a corresponding 5% and 4%, respectively. This indicates that Liberty

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is spreading its CIBS program work among all three of its divisions: Northern, Central, and

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Southern. It should be noted that the difference between 92.6 miles remaining, which is

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derived from the annual DOT 7100 report filed with the Commission and the 78.65 miles

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reported in the CIBS filings results from a recording lag of documenting asset data of nearly

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14 miles in Liberty's GIS system. Liberty uses the amounts recorded in its GIS system to

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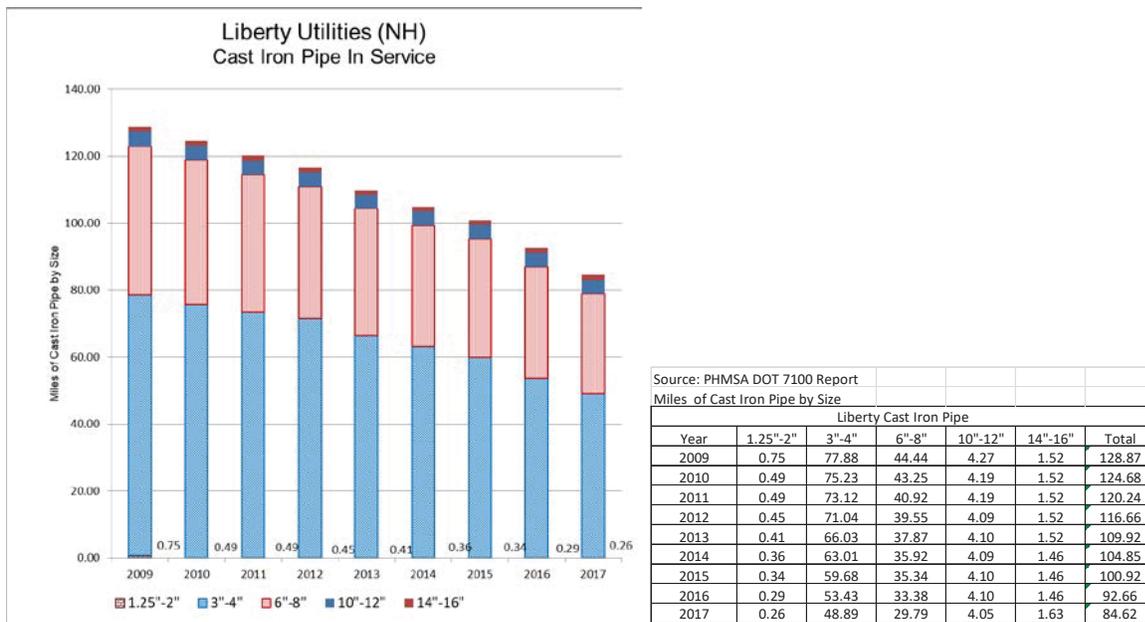
submit the mileage of cast iron/bare steel within the gas distribution systems as of December

1 31, 2017 and records it on its annual DOT 7100 report. Staff notes that FY 2018 had the  
 2 largest discrepancy in the ten year history between the two system reports.<sup>5</sup>

3 **Q. What is the breakdown of how much cast iron pipe is in service for each pipe diameter,**  
 4 **and why is this information important to the Safety Division?**

5 A. The Safety Division tracks the amount of every type and diameter of pipe in service. This  
 6 information helps Staff track the performance of each type and size of pipe as we review  
 7 prioritizations of which pipe segments of the remaining population are more leak prone. The  
 8 information also gives us a better idea of the expected cost to replace the pipe. See Figure 2  
 9 below for a breakdown of the Company’s inventory of cast iron pipe by pipe diameter. Staff  
 10 continues to suggest that Liberty concentrate on the 3”, 4”, and 6” diameter cast iron mains  
 11 that make up the majority of the remaining cast iron inventory.

12 **Figure 2.**

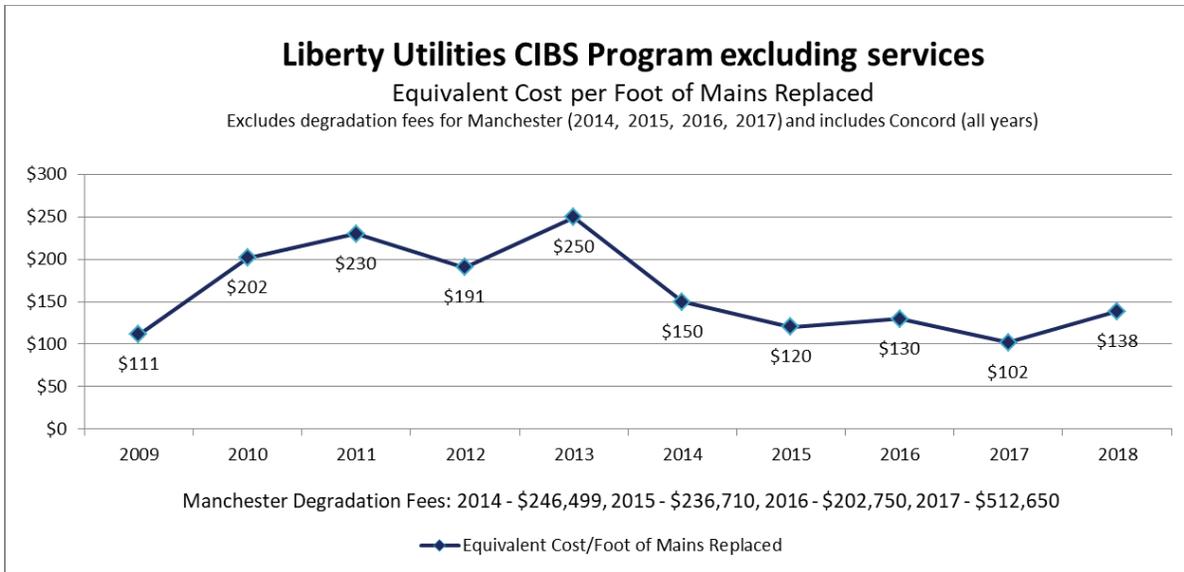


13  
 14 **Q. Since the inception of the CIBS Program, how does the overall cost per foot of mains**  
 15 **replaced compare from year to year?**

<sup>5</sup> The discrepancy was 13.95 miles [92.6 miles remaining and 78.65 miles remaining], nearly triple the discrepancy of FY 2016 of 4.6 miles and a 50% increase in the discrepancy from FY 2017 levels.

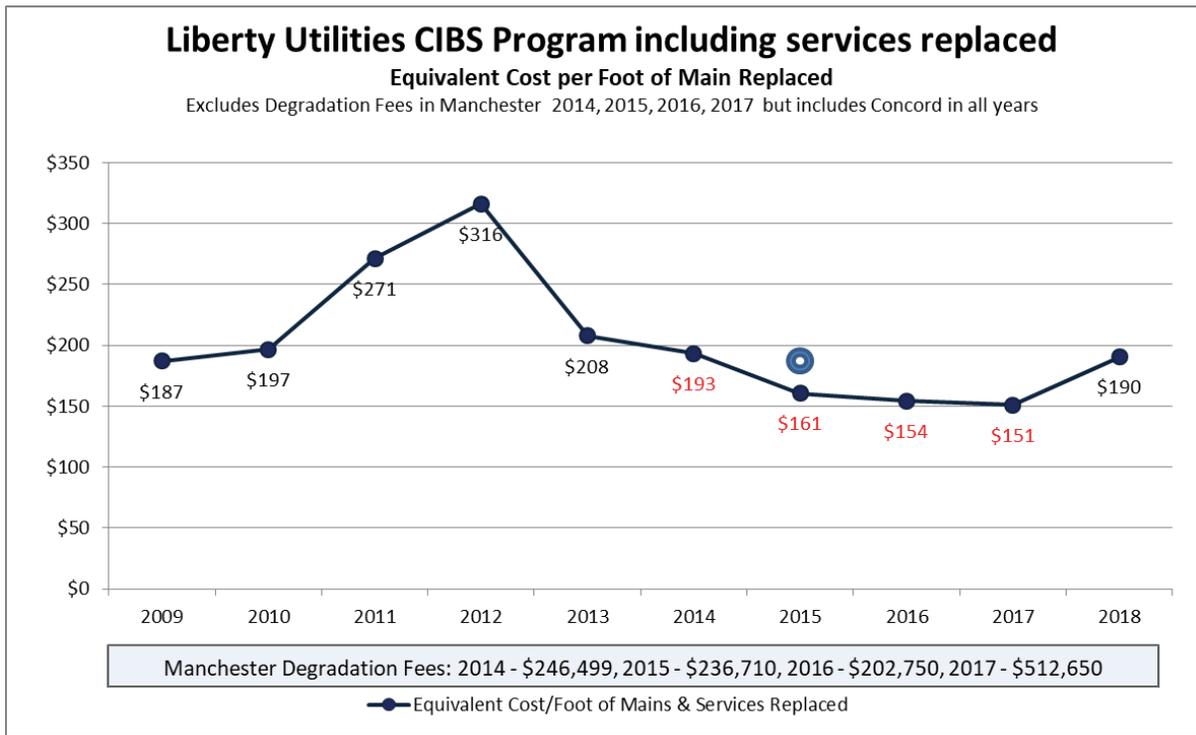
1 A. Figure 3-A below shows the overall CIBS Program expenditures in cost per foot of mains  
2 replaced from year to year. As expected, the cost per foot of main replaced decreases as the  
3 quantity replaced increases. Figure 3-B shows the overall CIBS Program expenditures in  
4 cost per foot of mains, but also includes the unit cost of replacing services that are attached to  
5 mains. Liberty has been able to lower the costs from \$150 per foot of main in 2014 to \$102  
6 per foot of main in 2017. All the data points in Figure 3-B are higher than those with main  
7 costs because these include the associated services that are also being replaced. If segments  
8 are selected that have multiple bare steel services as well as more non bare steel services that  
9 are in close proximity, then the combined costs typically increase. The encouraging trend is  
10 that Liberty has been driving down these unit costs over the past few years, although much of  
11 the cost decline may be a result of the increased miles replaced year over year. A similar  
12 explanation is the overhead cost trend, even which, though they may be rising, are spread  
13 over more miles being replaced. It should be noted these graphs do not reflect the lower  
14 amount of expenditures that are allowable for recovery under the CIBS program, but rather  
15 the total expenditures incurred.

16 **Figure 3-A**



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**Figure 3-B**



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1 **II. STAFF COMMENTS ON FY 2018 RESULTS AND THE FY 2019 CIBS FORECAST**  
2 **PLAN**

3 **Q. Please describe the FY 2018 Program and what was accomplished versus what was**  
4 **forecasted.**

5 A. On May 4, 2017, after a meeting with the Safety Division regarding an initial January 17,  
6 2017, detailed filing of proposed FY 2018 CIBS work, Liberty proposed a revised CIBS  
7 scope of 45 CIBS projects for FY 2018 (16 in Nashua, 16 in Manchester, and 13 in  
8 Concord/Tilton). This amounted to a planned replacement total of 12.65 miles with an  
9 additional 0.58 miles abandoned of leak prone pipe. Liberty modified its January 2017 plan  
10 by slightly reducing the initial amount of reduction in leak prone pipe, including mains and  
11 services, but slightly increasing the overall number of CIBS projects from 14 in Nashua, 14  
12 in Manchester, and 13 in Concord (includes Laconia). Seven of the 45 projects were delayed  
13 and never started and one project was significantly limited in size for FY 2018. Attachment  
14 SDF-DBF-2 of the Furey-Frost testimony, included as part of the Liberty Utilities CIBS  
15 filing on April 16, 2018, depicts what was accomplished. 11.55 miles of leak prone pipe  
16 were replaced and 0.58 miles were abandoned.<sup>6</sup> Liberty thus replaced approximately 7.5%  
17 less leak prone pipe than originally forecasted. Liberty has indicated that the quantity of  
18 resources applied was adequate. The 11.55 miles replaced represent approximately 23%  
19 more main replaced than the previous year, but 7.5% less than the proposal made to Staff in  
20 June of 2017 and submitted as revised testimony in docket number DG 17-063.<sup>7</sup> In terms of  
21 replacing bare steel services, Liberty replaced, inserted, or abandoned the highest number of  
22 bare steel services (364) in FY 2018 since the inception of the program, a nearly 5% increase

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<sup>6</sup> Liberty states that 11.58 miles of main in total were eliminated. Attachment SDF-BRF-2 AJ57, Bates Page 044, where 11.55 miles were installed plus 0.58 miles abandoned less 0.53 miles of coated steel and plastic were relayed or added to maintain the system.

<sup>7</sup> Source: DG 16-449 Attachment DBS -1 revised April 15, 2016, page 4 of 4, Line 11 (BP 062).

1 above FY 2017, but was 25.6% less than what was initially projected to occur.<sup>8</sup> This 25.6%  
2 decrease is largely a result of the seven associated main projects getting delayed and not  
3 started.

4  
5 Of the 38 projects in which mains and services were installed, only 11 had final restoration  
6 costs applied leaving 27 projects with carryover costs. Thus only 11 of the initial 45 projects  
7 proposed were started and completed within the construction season, with all costs applied to  
8 the program. This is an increase in unfinished projects from last year's work log which  
9 resulted in 24 unfinished projects in which final restoration was not completed. Of the 11  
10 completed projects, three were completed in May, two in July, three in August and three in  
11 September.

12 Of the 27 unfinished projects, one was partially completed in May, two were partially  
13 completed in June, three were partially completed in July, one was partially completed in  
14 August, one was partially completed in September, three were partially completed in  
15 October, three were partially completed in November, ten were partially completed in  
16 December, two were partially completed in January 2018, and one was partially completed as  
17 recently as February 2018.

18 The total estimated remaining paving costs associated with the 27 unfinished projects are  
19 \$3,698,261 which is broken down into \$587,393 for nine unfinished projects in Concord,  
20 \$1,839,089 for 13 projects in Manchester and \$1,271,779 for five projects in Nashua.

21 A summary is provided in Table 1 (below).  
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<sup>8</sup> Source: 5/4/17 revised forecast FY 2018 program: 364/489 bare steel services is 25.6 than forecasted%

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**Table 1:**

Completion	CasBuilt (Finished Paving)				Comp Main & Services (Unfinished Paving)			
	Concord	Manchester	Nashua	Sub Total	Concord	Manchester	Nashua	Sub Total
May-17	0	1	2	3	1	0	0	1
Jun-17	0	0	0	0	1	1	0	2
Jul-17	0	0	2	2	2	1	0	3
Aug-17	0	0	3	3	0	1	0	1
Sep-17	1	1	1	3	0	1	0	1
Oct-17	0	0	0	0	0	2	1	3
Nov-17	0	0	0	0	1	2	0	3
Dec-17	0	0	0	0	4	4	2	10
Jan-18	0	0	0	0	0	1	1	2
Feb-18	0	0	0	0	0	0	1	1
	<b>1</b>	<b>2</b>	<b>8</b>	<b>11</b>	<b>9</b>	<b>13</b>	<b>5</b>	<b>27</b>

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4 Table 2 summarizes the Bare Steel Services and Cast Iron/Bare Steel Mains that have been  
5 replaced since the program inception.

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**Table 2:**

Fiscal Year as Represented in Spreadsheets	Liberty FY	Bare Steel Services Replaced from CIBS Program	Cast Iron Bare Steel Replacement Feet from CIBS Program	CIBS Equivalent Miles
ending March 2009	FY 2009	104	15,183	2.88
ending March 2010	FY 2010	126	21,050	3.99
ending March 2011	FY 2011	105	14,086	2.67
ending March 2012	FY 2012	59	8,236	1.56
ending March 2013	FY 2013	49	8,738	1.65
ending March 2014	FY 2014	82	18,537	3.51
ending March 2015	FY 2015	159	24,964	4.73
ending March 2016	FY 2016	177	25,841	4.89
ending March 2017	FY 2017	347	50,385	9.54
ending March 2018	FY 2018	364	61,158	11.58
<b>Sub Total</b>		<b>1,572</b>	<b>248,178</b>	<b>47.00</b>
2018 (Estimated) as of 1/4/2018	FY 2019 (Projected)	465	73,022	13.83

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**Q. What is your assessment of the adequacy of the Liberty CIBS results for Fiscal Year 2018, beginning with a brief summary of the forecast?**

A. For FY 2018, the Company estimated it would replace 12.93 miles of cast iron and bare steel mains and would replace 489 bare steel services that are tied to these mains. Liberty projected it would cost \$17.613 million for these FY 2018 investments<sup>9</sup>. These two goals equate to an estimated cost per mile of replaced main of slightly more than \$1,362,215. The Company actually replaced 11.55 miles of cast iron and bare steel mains and 364 services during FY 2017 at a cost of \$15,313,206<sup>10</sup>. 27 projects were left uncompleted with respect to final paving restoration costs, but mains and services were installed. At this time these 27 projects can be estimated for all final paving costs in the amount of \$3,698,261, in which a portion or all are eligible for recovery in FY 2019. These are costs that should have been included but were “carried over” to next year. Finally, the impacts of 24 restoration projects of the FY 2017 that were finally completed in FY 2018 and the actual determined costs must be included. Initially these were estimated to be \$2,301,960<sup>11</sup>, but the actual costs came in at \$2,718,259. Liberty has not requested with its petition approval from the Safety Division for recovery of all of the actual \$2,718,259 in costs. The settlement allows for recovery of only \$735,802 unless the Safety Division approves a higher amount. Testimony of Simek and McNamara included the \$735,802 amount. The Safety Division recommends that only the \$735,802 be recovered for the similar reasoning as previously discussed in DG 16-449 and DG 17-063 oral and written testimony. The remaining balance of \$1,982,457

<sup>9</sup> Source: May 4, 2017 submittal Column P Line 57 = 12.93 miles; Column L Line 56 = 489 bare stl services; Column Y Line 56 = \$17,613,444

<sup>10</sup> Source: Attachment SDF-DBF-2, Column AJ, Line 57= 11.55 miles; Column AK Line 56 and AL Line 56 = 364 bare steel services; Column BL Line 56 = \$15,313,206. Also BP 008 of SDF and BRF Testimony

<sup>11</sup> Source DG 17-063 Exhibit 1 at 6/19/17hearing BP 043, col BD line 43 (\$430,417 for 10 projects Concord, \$482,280 for 5 projects Manchester, \$1443,263 for 9 projects Nashua)

1 (\$2,718,259 less \$735,802) is eligible to be recovered in the next rate case but should not be  
2 recovered in this docket.

3 While not exactly a “true” comparison between the estimated costs per mile and the actual  
4 costs per mile, if we include the assumed paving costs (27 projects) associated with the  
5 \$15,313,206 (38 projects) then the cost per mile of main with services replaced would come  
6 to approximately \$1,325,819 per mile.

7 Thus, the actual per mile loaded cost would be 104 % of the estimated cost.

8 **Q. What is your assessment of the adequacy of the Company’s results for FY 2018?**

9 A. The Company’s plan meets the requirements of the settlement agreement approved by the  
10 Commission, and does not include a request for an exception of carry over costs above the  
11 permitted \$735,802, as mentioned above. Liberty was able to gain sizeable ground during  
12 FY2018 by making a significant dent in the projected goal regarding the rate of reduction of  
13 leak prone pipe over the then eight year horizon. Liberty continues to strive toward  
14 completing its stated goal of removing all leak prone pipe by 2024. In FY 2018 Liberty  
15 replaced the largest amount of leak prone main and bare steel services ever in a single year,  
16 despite having 7 projects not started and one severely limited in scope. Going forward,  
17 Liberty has announced an even more aggressive rate of 13.8 miles for FY 2019 CIBS and an  
18 expected 2.8 miles of replacement from city/state construction. If those were to be achieved  
19 and there are 78.6 miles remaining after FY 2018, assuming 16.5 miles will be replaced through  
20 city/state construction in future years, then the remaining 6 years the CIBS program would  
21 require a smaller replacement rate of 7.6 miles per year. This seems achievable and a more  
22 favorable and manageable project schedule, given all the other projects that Liberty is  
23 undertaking at this time.

1 **Q. Please explain why you believe the Company has made positive progress even though it**  
2 **did not achieve its CIBS mains replacement program targets.**

3 A. I have created Table 2 below to illustrate my observations. The table summarizes the total  
4 cast iron and bare steel mains that have been replaced annually in the CIBS Replacement  
5 Program, coupled with the additional cast iron/bare steel pipe that is replaced during local  
6 municipal projects, including the minor amount of cast iron mains replaced as part of the  
7 separate Cast Iron Encroachment Program. As noted in Table 2, with data provided by the  
8 Company in Attachment DBS-1, page 4 of Mr. Simek's and Ms. McNamara's testimony,  
9 over the past 10 years 75.93 miles of cast iron and bare steel mains have been replaced, but  
10 only 48.34 miles (64%) have been replaced as part of the CIBS program. This leaves 78.6  
11 miles of cast iron and bare steel mains yet to be replaced. The average rate of replacement  
12 over the past ten years has been 7.89 miles per year but the rate of replacement during the  
13 last 5 years has been 9.9 miles per year. Liberty exceeded both the 5-year and 10-year  
14 averages in FY 2018. At the most recent historical pace, however, it will take approximately  
15 7.9 years to replace all remaining cast iron and bare steel pipe in Liberty's system. Liberty  
16 believes that this can be accomplished in seven years.

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**Table 2.**  
**Liberty Utilities Cast Iron and Bare Steel Replaced and Remaining Pipe**

<b>CIBS Replacement Program Fiscal Year</b>	<b>Municipal Projects &amp; Encroachment Program Pipe Miles Replaced</b>	<b>CIBS Program Pipe Miles Replaced /1</b>	<b>Total CIBS Plan, CIBS Municipal &amp; CI Encroachment Miles Replaced</b>	<b>CIBS Pipe Miles Remaining in System /2</b>
<b>2009</b>	2.11	2.96	5.07	149.80
<b>2010</b>	3.78	3.98	7.80	142.00
<b>2011</b>	2.22	2.79	4.60	137.40
<b>2012</b>	3.38	1.56	4.94	132.10
<b>2013</b>	2.38	1.65	4.03	126.30
<b>2014</b>	3.63	3.51	7.14	120.88
<b>2015</b>	2.04	5.00	7.04	113.96
<b>2016</b>	2.36	5.05	7.50	106.46
<b>2017</b>	2.97	10.26	13.28	93.18
<b>2018</b>	2.95	11.58	14.53	78.65
<b>Avg/Year</b>	2.78	4.83	7.59	
<b>Total Miles</b>	27.82	48.34	75.93	
1. Source: Attachment DBS/CAM-1, p. 4 of 4, line 11			Replaced also includes those that were modified for connections, retiring, upsizing and other minor factors	
2. Source: Attachment DBS/CAM-1, p. 4 of 4, line 13				

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The Safety Division (Staff) observes that while Liberty increased the amount of mileage that was replaced in the CIBS program to the highest level since its inception, the seven-year horizon that was envisioned by Staff and agreed to by Liberty in DG 14-041, DG 15-104, DG 16-449, and DG17-063, and confirmed in DG 18-064 would require approximately 11.24 miles per year using the ten-year average. Liberty has further increased its intentions of installing 13.83 miles with 464 bare steel service replacements in FY 2019, not including three miles of municipal work expected in FY 2019. Staff is cautiously optimistic that Liberty can accomplish this but has reservations based on what has historically been

1 achieved, as well as the many concurrent projects being developed by Liberty. Staff is  
 2 pleased to see that Liberty has acknowledged the need to replace aging infrastructure as a  
 3 company priority but recognizes the challenges this major program has upon other competing  
 4 programs within the Company. Increasing the rate of replacement requires continual and  
 5 increased oversight, increased numbers of qualified crews, increased training requirements,  
 6 an increased probability of construction requirements not being strictly adhered to, more  
 7 inspectors needed for construction quality audits, and increased communications with  
 8 municipalities, all while continuing to work within the confines of a construction and paving  
 9 season. Inattention to any of these components could jeopardize the Company's pipeline  
 10 safety goals and timeframes.

11 **Q. In oral testimony regarding FY 2016 CIBS (DG 16-449) and again in both oral and**  
 12 **written testimony regarding FY 2017 CIBS (DG 17-063) programs, Staff and Liberty**  
 13 **positions regarding carry over costs did not agree on granting exceptions to the section**  
 14 **2.7 provision of the settlement agreement. Has either party's previous positions**  
 15 **changed in this docket?**

16 A. No, my previous position remains unchanged from my prior testimonies. This year, Liberty  
 17 submitted recovery based on only the 5% of estimated total amount allowed in Item 20 (d)  
 18 (2.7), so there was no cause for discussing this item again. Staff notes that this 5% of  
 19 estimated costs translates to approximately 27% of carryover costs being allowed.<sup>12</sup>

20 **Q. Did Liberty produce a report regarding the number of Conversions of Non Gas**  
 21 **Customers?**

22 A. Yes, Liberty provided a half page summary of the statistics. In summary, 154 customers  
 23 were potential conversion opportunities and 16 customers had services installed. This  
 24 indicates that a high response rate of 16/154, or approximately 10%, was achieved<sup>13</sup>. The

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<sup>12</sup> \$735,802/\$2,718,259

<sup>13</sup> Liberty reported results Dec 20, 2017 indicating 18 but SDF/BRF Testimony BP 016 indicated 16.

1 industry standard is typically a 1% to 2% response rate. Liberty believes that a response  
2 rate of 10% is considered “low”.

3  
4 Liberty’s Main and Service Extension Policy was adjusted in August 2016 to provide 100  
5 feet of service installation at no charge to be extended to residential non-heat customers  
6 who commit to taking service prior to a main extension or replacement. The CIBS  
7 program is an appropriate mechanism to apply this new tariff. Liberty’s testimony does  
8 not discuss the impact of this policy on the CIBS program. Efforts need to be initiated  
9 years ahead (as far as three years out) for potential gas mains that are candidates to be  
10 replaced to provide customers the requisite time to consider converting to natural gas as a  
11 fuel supply. Currently Liberty begins the marketing efforts only when the annual CIBS  
12 replacement program details are finalized. .

13 **Q. Liberty believes marketing to CIBS candidates is not particularly beneficial. Do you**  
14 **agree with Liberty’s assessment?**

15 No. The Furey/Frost Testimony on Bates Pages 015 through 020 discusses Liberty’s  
16 rationale for reducing CIBS marketing efforts to “pursue more effective marketing  
17 opportunities.” This rationale is flawed for the following reasons:

- 18 1) Liberty’s comparisons are apples to oranges. One would obviously expect to work  
19 harder and spend more in picking up customers who don’t presently use gas than  
20 those in virgin territories that have not been exposed to natural gas opportunities in  
21 the past. The low hanging fruit has already been converted decades earlier and the  
22 barriers to overcome are greater for the CIBS program.
- 23 2) Liberty includes costs of mailings to all customers, including those who already have  
24 gas. Including these costs and the hours spent mailing yields a distorted picture.

- 1 Pursuant to 49 CFR Part 192. 614 and Puc 804.02 (a) (b) and (c), Liberty is required  
2 to notify abutters of any project where they will be excavating. For instance, in the  
3 FY 2018 CIBS program, Liberty sent 1,419 mailers but 1,265 were sent to existing  
4 customers leaving 154 homeowners as non-customers who were notified. Liberty  
5 claims \$12,591 in costs for these 154 homeowners. Instead of separating out just the  
6 existing gas customers from the non-gas customers Liberty is comingling  
7 requirements with those of marketing.
- 8 3) Liberty relies on commercially available public databases and company account  
9 holders rather than using internal knowledge obtained from field technicians, for  
10 example, on new potential customers.
- 11 4) Liberty does not market years ahead of time but rather markets one year at a time as  
12 part of each CIBS program year.
- 13 5) New main extension projects should not be compared to those on existing mains that  
14 have saturation rates already above 80%. Often new projects are associated with new  
15 developments and virgin territory while one would expect a lower percentage rate for  
16 those on existing mains. One should not attempt to compare the costs of those two  
17 efforts against each other, as it would be expected that the new growth customers  
18 would yield a higher percentage. In fact the main extension program is premised to  
19 yield such a result.
- 20 6) Liberty has not provided any evidence of marketing efforts such as campaigns for  
21 employee or contractor-generated leads with appropriate incentives and tracking  
22 results.

1           7) These opportunities to physically work in front of CIBS customers do not present  
2           themselves often, considering the 20+ year life cycle of a heating appliance. Not  
3           focusing marketing efforts on these customers seems to squander opportunities that  
4           do not often arise.

5

1

2 **III. STAFF COMMENTS ON THE FY 2019 FORECAST IN RELATION TO FY 2018**  
3 **PROGRAM RESULTS**

4 **Q. What is your assessment of the adequacy of the Liberty CIBS plan for Fiscal Year 2019,**  
5 **beginning with a brief summary of the forecast?**

6 A. Under the CIBS program forecast, FY 2019, the Company estimates it will replace 13.8  
7 miles of cast iron and bare steel mains. Liberty projects this will cost approximately  
8 \$15,130,000. Liberty has never replaced more than 400 bare steel services in any one season  
9 during the CIBS program and Liberty projects in excess of 400 bare steel services. This is an  
10 aggressive goal and Staff is cautiously optimistic about the chances of it coming to fruition  
11 but believes the likelihood of the goals translating into actuals will be challenging.

12 **Q. How does the FY 2019 forecast compare with the Company's CIBS results during FY**  
13 **2018.**

14 A. The Company replaced 11.55 miles of cast iron and bare steel mains and 364 services during  
15 FY 2018 at a cost of \$11,614,945 or approximately \$1,005,622 per mile<sup>14</sup>.  
16 The FY 2019 forecast of \$1,093,998 per mile is approximately 8% higher than the actual  
17 cost per mile from FY 2018. Staff attributes some of this higher cost to a greater number of  
18 services per mile that will be replaced in FY 2019 as well as increased municipal degradation  
19 costs being applied.

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<sup>14</sup> DBS/CAM-1 Attachment page 3 of 4

1 **IV. STAFF RECOMMENDATIONS OF CIBS ACCELERATED REPLACEMENT**  
2 **PROGAM GOING FORWARD IN FY 2019 AND FY 2020 AND OTHER**  
3 **SUGGESTED RECOMMENDATIONS**

4 **Q. Liberty has again indicated that they intend to remove the remaining cast iron and bare**  
5 **steel by 2024. Does Staff support this accelerated time frame?**

6 A. Staff welcomes the proposed increased rate of replacement projects. For FY 2019, Liberty is  
7 now the only gas utility with cast iron and bare steel mains in New Hampshire. It will not  
8 cost less per mile in 2024 than the unit expenditures of today. Staff, once again, remains  
9 cautious that this requires increased focus of management to oversee that volume of projects,  
10 manage resources efficiently (especially outside crews), and maintain sufficient quality  
11 assurance of the replacement projects while balancing increased growth projections and other  
12 large capital projects. Staff believes that in the long run there are operational and  
13 maintenance offsets that can be achieved such as having fewer emergency responses, fewer  
14 leak surveys required, and less overtime associated with leak repairs that require repairs after  
15 normal business hours. Liberty has not quantified any these offsets yet.

16 For FY 2020, the Safety Division will or will have by the time of the hearing, sent an official  
17 request to Liberty to explore the options and implications of terminating or suspending the  
18 CIBS program going forward. After 10 years of the program, the Safety Division believes it  
19 is appropriate to reexamine the existing CIBS program and evaluate whether the same  
20 conditions that existed prior to FY 2009 are still applicable. This would include examining:

- 21 1) Is the need for mitigating lead/lag between rate cases the same as in the past?  
22 2) Has the overall leakage rate been substantially reduced since 2009 ?  
23 3) What rule changes regarding to leak surveys and monitoring have been implemented  
24 since 2009?  
25 4) Are recent leaks found mostly on leak prone piping or another class of materials?

- 1 5) What is the impact of municipal degradation fees to the program?
- 2 6) Is the purpose of the program meant to be a long term (until its conclusion) or short term
- 3 program?
- 4 7) Is the current administration of the program requiring resources from both the Company
- 5 and Staff in the most effective manner?

6 **Q. What are the cost implications of accelerating the pace of the program as you suggest?**

7 A. Although the annual costs would be noticeably higher in total if Liberty maintains its recent  
 8 pace of replacement, I believe the per-therm charges can be absorbed with manageable  
 9 impact on customer bills. The future costs of replacement over a longer time period will  
 10 inevitably be higher and pushing the program out over an extended amount of time only  
 11 delays the conclusion of the program while not reducing risk. In the long run, I would expect  
 12 that rate payers would realize savings in costs related to this accelerated program. Other  
 13 considerations would be the improved safety and reliability from replacing these problem  
 14 mains by 2024 as opposed to beyond.

15 **Q. Can the carry over cost problem worsen in FY 2019?**

16 A. Yes, the problem continues to be increasingly larger amounts of work extending into the next  
 17 season as more replacement projects are undertaken but Liberty has not petitioned to recover  
 18 these in FY 2018. It remains to be seen if they will request an exception in the future.

19 **Q. What other recommendations do you have going forward?**

20 A. I would recommend that Liberty continue filing CIBS petitions by April 15 of each year as  
 21 has been done the last few years rather than May 15.

22 I would recommend that the Commission continue to require as was done in Commission  
 23 Orders No. 25,684, and No. 25,798, that Liberty provide a report to Staff by the end of 2018  
 24 documenting the results of its market research conducted during 2018, and its plans for

1 marketing to new customers on a going forward basis along mains being replaced under the  
2 Company's CIBS Replacement Program. Liberty should include in its marketing results any  
3 customers that took advantage of the 100 feet of free service tariff condition that the  
4 Company began offering in August 2016.

5 **Q. Have the FY2018 costs used to calculate the CIBS revenue requirement and proposed**  
6 **rate increase been audited by the commission Audit Staff?**

7 A. Yes. The Commission noted in Order 25,798 of DG 15-104 that audits are warranted<sup>15</sup>. FY  
8 2017 was the first year a comprehensive audit was performed and there were no findings of  
9 any expenditure or allocation method that pointed to a potential problem. For FY 2018, the  
10 audit was just completed in mid June 2018 but not prior to this testimony being submitted.

11 **Q. Do you believe going forward audits should be required annually for the CIBS**  
12 **program?**

13 A. Yes, given the significant amount of expenditures Liberty is proposing in FY 2019, I believe  
14 an audit should be required and an accompanying report be produced annually.

15 **Q. Does this conclude your testimony?**

16 A. Yes.

17

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<sup>15</sup> Transcript DG 15-104 page 23 lines 12-18, Order 25,798 p 8 Line 3.