

STATE OF NEW HAMPSHIRE
PUBLIC UTILITIES COMMISSION

DG 20-049

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 12, 2020

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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 the University of
7 Rochester and a Master of Science in Civil Engineering from the University of
8 Massachusetts. I am a licensed Professional Engineer in the State of New Hampshire,
9 License No. 9272. For continuing education, I have completed 21 Technical Training
10 Courses and 23 Online Training Sessions provided by the Training and Qualification Center
11 of the Pipeline and Hazardous Materials Safety Administration (PHMSA). See RSK
12 Attachment 1.

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

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

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

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

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

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

20 A. My testimony is comprised of the following elements:
21 1) Comments on the final reconciliation of the FY 2020 CIBS program that will terminate
22 with this proceeding in accordance with Commission Order No. 26,266 (June 28, 2019),
23 issued in Docket DG 19-054;

1 2) Recommendations for future Commission consideration regarding aged and worn pipe
 2 replacement programs.

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

5 A. A complete detail of the parameters of the CIBS program is included in Attachment J,
 6 Section 20 of the Settlement Agreement approved in Order No. 25,370 (May 30, 2012),
 7 approved in Docket DG 11-040 concerning the Liberty Utilities acquisition of EnergyNorth
 8 Natural Gas from National Grid. A copy of Attachment J, Section 20 is provided as RSK
 9 Attachment 2 to my testimony.

10 Safety Division Staff reviewed the Company’s written reports of actual cutouts of
 11 certain segments of bare steel mains that were replaced in CIBS FY 2020 (April 1, 2019-
 12 March 31, 2020) through this program. The CIBS Program requires sample physical cutouts
 13 of bare steel mains to be hand-delivered to the Safety Division for examination by its Staff.
 14 Staff does not require physical cutouts of cast iron mains. The condition reports prepared by
 15 the Company provide the Safety Division with valuable pipeline integrity data, including
 16 pipeline wall thickness, pipeline age, soil conditions, system pressure, and location
 17 information of bare steel pipe segments related to various types and vintages of removed bare
 18 steel segments. These characteristics determine integrity and corrosion assumptions that
 19 should be incorporated into distribution integrity management planning. Since the program
 20 inception, Staff has continually seen deep pitting, seam cracks, holes, and other undesirable
 21 features of the bare steel mains. For CIBS FY 2020, 4 projects required bare steel
 22 replacement that necessitated written condition reports; 1 of the 4 bare steel pipe locations
 23 included in the report had 100% wall loss (i.e., holes) and 2 of the 4 had wall losses of at

1 least 50%.¹ This indicates that the pipeline in question had far exceeded acceptable safety
 2 requirements and was leaking 24 hours a day, 365 days per year, with ratepayers bearing the
 3 expense through the cost of gas adjustment recovery mechanism. The average age of these 4
 4 selected bare steel main projects was 72.5 years of service from installation to replacement.
 5 Since 2009, 63² individual reports have been completed regarding bare steel segments, which
 6 is an average of 5.25 per year. The average age of each bare steel segment removed is 83.1
 7 years, excluding two reports where Liberty could not determine the age of the segment
 8 removed. See RSK Attachment 3 and RSK Attachment 4 for additional details related to the
 9 historical CIBS program written bare steel reports.

10 According to its most recent CIBS filing, Liberty has reduced the amount of leak prone pipe
 11 from 68.74 miles in FY 2019 to 55.83 miles in FY 2020³. This 12.91 mile decrease includes
 12 11.13 miles as a result of the CIBS program (10.55 miles replaced plus 1.56 miles
 13 abandoned, less 0.97 miles related to coated steel and plastic mains.)⁴. The remainder of the
 14 12.91 mile decrease is comprised of 1.78 miles⁵ related to municipal work and Liberty’s cast
 15 iron encroachment policy; both are considered beyond the scope of the CIBS program.

16 Included in the 10.55 miles replaced is 3.97 miles of leak prone pipe that was upsized.

17 **Q. Compared to the FY 2019 CIBS Program, how does the overall cost per foot of mains**
 18 **replaced compare from year to year?**

¹ See Liberty Mostone/Frost (RAM-BRF) Testimony, Attachment at BP 025 to 029.

² Liberty and its predecessor companies have provided 63 written reports to date. Two of the reports submitted were on coated steel segments in FY2010, thus only 61 were required. In 4 written reports Liberty did not identify the age of pipes; in those cases Staff assumed an age based on installation dates of nearby mains in the vicinity and a review of service documentation.

³ The source of this mileage is Liberty Attachment CAM-1, page 4 of 4, Bates Page 045 (line 13).

⁴ The source is Liberty Attachment RAM-BRF-2 AJ52, Bates Page 030, (Note Liberty states cell R52 is 1.56 abandoned miles but 3 projects were not started so need to exclude .05 miles of potential abandonment. This is derived from 260ft /5280 ft/mile associated with R40 Ledge St and Ramon Avenue in Nashua). Note 11.14 is attained through rounding but 11.13 is used throughout Liberty testimony.

⁵ The source is Liberty RAM-BRF Testimony, Bates Page 009 line 16, and Attachment RAM-BRF-1, Bates Page 023.

1 A. Liberty in FY 2020 incurred costs per mile of mains replaced of \$1.919 million per mile,
 2 which is equivalent to \$363/ft.⁶ Liberty in FY 2019 incurred cost per mile of mains replaced
 3 of \$1.687 million per mile which is equivalent to \$319.5/ft. This is a rather large 12%
 4 increase in a single year where more main was replaced and typically receives a lower
 5 amount of allocated overhead costs. In most cases, the overall cost per foot of main replaced
 6 decreases as the quantity replaced increases but this did not occur in FY 2020. Liberty’s
 7 explanation is comprised of three main factors:

- 8 1) more segments are located in asbestos contaminated areas of Hudson, which requires
- 9 expensive construction delays and expenditures;
- 10 2) increased municipal costs associated with primary arterial streets requiring increased
- 11 traffic control requirements and restricted hours per day to accomplish work; and
- 12 3) higher per unit costs of bids received from a new five-year gas contract for construction
- 13 and replacement services.

14 Liberty testimony in this docket describes Liberty’s performance as able to “successfully
 15 manage” the CIBS program as a whole despite its FY 2020 variances of actual costs to
 16 estimates of 15% for loaded costs and 27% between estimates and actual costs on a direct
 17 cost basis.⁷ Liberty describes the overall 15% variance as “slightly elevated”.

18 Of the 39 projects proposed in January 2019, 3 were not initiated. Of the remaining 36
 19 projects, 7 were not completed and were extended into the FY 2021 season. These 7
 20 projects, which had significantly reduced the scope of the project, prevented the overall
 21 variances from being even higher since they were considered negative variances. Nearly half

⁶ Source: Liberty RAM-BRF Testimony stating \$21,369,317 in costs incurred for 11.13 miles replaced. Bates Page 008 line 16. This is equivalent to \$363/ft.

⁷ Liberty RAM-BRF Testimony. Bates Page 011 line 16 -18, 21 and Bates Page 013 Line 18.

1 of the projects, 13 of the 29 completed projects had variances higher than 27%. Beyond
 2 those projects listed, another four of the projects had variances that doubled or more than
 3 doubled the initial estimate. The highest variance was more than 2.5 times the original
 4 estimate where the estimated cost was \$346,298 and the actual loaded cost was \$870,165.
 5 All combined, this made FY 2020 the highest per unit cost of replacement projects that
 6 Liberty has undertaken and is reflected in the incremental revenue requirement of
 7 \$14,885,260.⁸ If the CIBS base amount provision, carryover cost limitations, upsizing,
 8 abandonment, and non bare steel service cost recovery limitations were not included,
 9 Liberty's revenue requirement would have been \$21,369,387.⁹

10 **Q. Are there any other notable events included in Liberty's FY 2020 reconciliation?**

11 A. Yes, for the first time a Keene cast iron replacement project was included in the CIBS
 12 program. A single project in Keene on Marlboro Street and Martin Street consisting of 4,710
 13 feet and costing \$776,178 was included. While there was a single footnote in last year's
 14 CIBS FY 2019 attachment that revenues of Keene were being combined with the remainder
 15 of Liberty's revenues, there was no project included as a replacement project in CIBS FY
 16 2019. In CIBS FY 2020 CAM-1 Attachment BP 045 includes the same footnote but Liberty
 17 did include the project mentioned above. The original January 2019 proposed project list
 18 submitted to Staff by Liberty did not contain a Keene project, but the May 2019 project list
 19 submitted to Staff did contain the Marlboro Street project in Keene. The Safety Division did
 20 not notice the project because it was listed in the Company's Southern Division, where in
 21 most other Company filings the Keene Division is separated and is not included as part of the
 22 Southern Division. Staff noted that the corresponding amount of cast iron remaining in

⁸ Liberty RAM-BRF Testimony, Bates Pages 019, 020.

⁹ Liberty RAM-BRF Testimony, Bates Page 008 line 16, Bates Page 020, and 021.

1 Keene does not appear to be reflected in associated line 13 of CAM-1 attachment in FY 2020
 2 or FY 2019. Staff once again believes Liberty should prepare a comprehensive business plan
 3 for Keene prior to undertaking large projects in its Keene territory so that Staff can be better
 4 informed if the upsized project comports with the overall plan for Keene, including whether
 5 the low pressure system will remain and how the conversion plans to CNG will be
 6 implemented. Since the CIBS accelerated recovery program will terminate with this
 7 proceeding, the approximately 6.75 miles¹⁰ of cast iron in Keene will not have to be updated
 8 or included in a filing with the Commission going forward.

9
 10 Liberty abandoned 13 bare steel services and replaced 230 bare steel services with
 11 polyethylene. 247 existing services that were coated steel or polyethylene were tied over
 12 from the retired leak-prone main to the newly installed polyethylene mains. 20 new services
 13 were installed to customers along that main that were previously not customers of Liberty.
 14 The 20 new services was the highest amount Liberty has achieved during the course of the
 15 CIBS program.

16
 17 **Q. Does Liberty still commit to replacing the remaining bare steel and cast iron by 2024 as**
 18 **previous testimonies in prior CIBS proceedings had projected.**

19 A. No, Liberty’s FY 2020 testimony does not mention any future replacement timelines. RSK
 20 Attachment 5 includes a Company discovery response that indicates that 2024 is no longer
 21 Liberty’s goal for completion of all CIBS pipe replacement in its service territories. Given
 22 the 55 miles of existing systems and the inclusion of the 6.75 miles of cast iron within the

¹⁰ Liberty PHMSA 7100.1 reports, filed annually with Safety Division, reflect 6.756 miles of cast iron remain in Keene as of December 31, 2019.

1 Keene system into Liberty’s replacement program, coupled with other significant projects
 2 that Liberty is planning, it is doubtful that the Company will complete all replacements by
 3 2024, as it had originally said it would do. Absent a Commission mandate to have leak prone
 4 pipe removed by a certain date, Liberty can prolong the replacement rate.

5 **Q. Does Staff recommend an end date for replacement work be established as part of this**
 6 **final CIBS proceeding?**

7 Yes, Staff recommends that the Commission require Liberty to set a targeted goal to remove
 8 and replace all remaining cast iron and bare steel mains from its distribution system by the
 9 end of calendar year 2025, with the exception of mains equal to or greater than a 10 inch
 10 nominal diameter and mains associated with the Keene system. Downstream bare steel
 11 services attached to such remaining mains should also be targeted. Liberty should notify
 12 Commission Staff when the final main is removed.

13 **Q. With the termination of the CIBS program, is Liberty required to annually file detailed**
 14 **cost estimates and descriptions of the remaining replacement work with a**
 15 **quantification of services replaced? Does the information provide valuable data for**
 16 **tracking metrics?**

17 A. No, with the termination of the CIBS program, Liberty is no longer required to file such
 18 reports or provide physical samples of replaced bare steel mains. Nor is a hearing on the
 19 status of the program for cost recovery required. However, that data would provide a full
 20 accounting on a segment by segment basis of the many construction replacement projects
 21 that Liberty is undertaking and would allow the Safety Division to compare replacement
 22 project records against leak reports, odorization reports and capital expenditures. It would
 23 also give an indication of where crews will be located for planning Safety Division
 24 inspection work and the type of Liberty work to be accomplished at any given time.

25 **Q. What options are available for the Commission to implement such a requirement?**

26 A. There are 3 potential options:

1) The Commission can include within this docket a provision that orders Liberty to provide the same records and materials that it has been providing for the past 12 years, similar to page 16 of Attachment RAM/BRF BP030 for replacement work and Attachment CAM-1 BP 047-050 for impacts.

2) The Commission can require that Liberty provide sufficient detail each May in its E-22 report of capital expenditures, as required by Puc 509.11. RSK Attachments 6A, 6B and 7 provide samples of the detail of replacement work capitalized in Liberty’s budgeting (6A), of what Liberty provided on the E-22 for FY 2021, filed in May of 2020 (6B), and what it provided with a data response that provides much more detail (7).

3) The Commission can also require enhanced details to be provided on daily crew reports that indicate work order number, system pressure, replacement project description and length, and clearer description of the work activities to be accomplished. Daily crew reports are required as part of Commission Order No. 25,370 in Docket DG 11-040 as part of Settlement Attachment J, item 14 but lacks details regarding what types of information should be included in the daily crew report. RSK Attachment 8 is a sample of a Liberty daily crew report. The Commission has the authority to require Options 1, 2, and 3, or any combination of those.

Q. Which options are recommended by Staff?

A. Staff believes information on the E-22 that is supplemented with details as shown in RSK Attachment 7 would be sufficient for the replacement work. Combined with Option 3, that approach would allow future tracking of significant expenditures and would allow for limited inspection comments for future audits and improved rate case reviews. Staff would propose

1 similar changes to the E-22 form in a future Puc 500 rulemaking and this remedy would be
2 sufficient in the interim.

3 **Q. What are the results of Staff's Audit?**

4 RSK Attachment 9 is the Commission Staff audit of Liberty's CIBS FY 2020 program
5 conducted by Anthony Leone, a Utility Analyst in the Gas Division. In summary, the
6 Analyst reviewed work orders, supporting documents, invoices, journal entries, Excel
7 spreadsheets of the FY 2020 CIBS Program, and any other necessary supporting
8 documentation that would substantiate the information presented in the Company's filings.

9
10 **Q. Did Liberty produce a report regarding the number of Conversions of Non Gas**
11 **Customers?**

12 No, Commission Order No. 25,370 did not require Liberty to provide any statistics regarding
13 Liberty customer additions for mains associated with the CIBS program as had been required
14 in previous Commission Orders. Liberty did state that 20 customers were added for FY
15 2020, compared to 16 in FY 2019 and 6 in FY 2018. It did not indicate that there were any
16 changes to its marketing program, or that Liberty would continue marketing efforts going
17 forward, given the Company's testimony in prior CIBS dockets that it does not believe
18 marketing to be a fruitful exercise to encourage customer service additions.

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

20 A. Yes

RSK Attachment 1
Liberty Utilities CIBS FY 2020
(April 1, 2019 - March 31, 2020)
DG 20-049
June 12, 2020

Knepper Applicable PHMSA Training Completed			
Online Computer Based Training		Status	Date
1	PHMSA-PL1DIMP Introduction of Distribution Integrity Management Program WBT	Successful	5/3/2011
2	PHMSA-PL1GLAW Introduction to Gas Laws WBT	Successful	8/11/2014
3	PHMSA-PL1HCA High Consequence Areas WBT	Successful	7/4/2005
4	PHMSA-PL1ICDA Internal Corrosion Direct Assessment WBT	Successful	4/1/2011
5	PHMSA-PL1IPROC Integrity Management Processes WBT	Successful	7/6/2005
6	PHMSA-PL1ODOR Natural Gas Odorization WBT	Successful	4/4/2011
7	PHMSA-PL1PRESS Fundamentals of Gas Pressure Regulators WBT	Successful	2/26/2007
8	PHMSA-PL1RA Introduction to Risk Assessment Methods WBT	Successful	4/25/2015
9	PHMSA-PL2FLMEC - Fundamentals of Fluid Mechanics WBT	Successful	4/24/2015
10	PHMSA-PL2P195 Introduction to Part 195 WBT	Successful	4/14/2015
11	PHMSA-PL3CP Fundamentals of Pipeline Corrosion and Cathodic Protection WBT	Successful	8/14/2007
12	PHMSA-PL3ECDA External Corrosion Direct Assessment WBT	Successful	4/1/2011
13	PHMSA-PL3ELEC Fundamentals of Basic DC Electricity WBT	Successful	8/18/2007
14	PHMSA-PL3OQ Operator Qualification WBT Course	Successful	1/31/2006
15	PHMSA-PL3PIG Fundamentals of Launching and Receiving Maintenance Pigs WBT	Successful	6/8/2010
16	PHMSA-PL3PP Fundamentals of Plastic Pipe WBT	Successful	4/12/2007
17	PHMSA-PL3REG Regulatory Overview WBT	Successful	4/8/2015
18	PHMSA-PL3SCADA Fundamentals of SCADA Systems WBT	Successful	3/14/2011
19	PHMSA-PL3SCCDA Stress Corrosion Cracking Direct Assessment WBT	Successful	8/23/2006
20	PHMSA-PL3WELD Introduction to Pipeline Welding WBT	Successful	6/1/2007
21	PHMSA-PL4LNG Fundamentals of Liquefied Natural Gas (LNG) WBT	Successful	6/15/2005
21	PHMSA-PL3IC - Investigating and Managing Internal Corrosion of Pipelines WBT	Successful	10/6/2016
22	PHMSA-PL3DA Drug and Alcohol Testing for the Pipeline Industry WBT	Successful	10/8/2016
COURSES		Status	Date
1	PHMSA-PL1297 Gas Integrity Management (IM) Protocol Course	Successful	5/5/2005
2	PHMSA-PL4253 Liquefied Natural Gas (LNG) Safety Technology and Inspection Course	Successful	7/29/2005
3	PHMSA-PL1250 Safety Evaluation of Gas Pipeline Systems Course	Successful	12/15/2005
4	PHMSA-PL2284 (HAZWOPER) Refresher for Pipeline Safety Representatives	Successful	1/9/2007
5	PHMSA-PL3322 Evaluation of Operator Qualification (OQ) Programs Course	Successful	1/21/2016
6	PHMSA-PL3256 Pipeline Failure Investigation Techniques Course	Successful	2/9/2007
7	PHMSA-PL1255 Gas Pressure Regulation and Overpressure Protection Course	Successful	4/12/2007
8	PHMSA-PL1310 Plastic and Composite Materials Course	Successful	6/15/2007
9	PHMSA-PL3242 Welding and Welding Inspection of Pipeline Materials Course	Successful	6/15/2007
10	PHMSA-PL3254 Joining of Pipeline Materials Course	Successful	6/15/2007
11	PHMSA-PL3257 Pipeline Safety Regulation Application and Compliance Procedures Course	Successful	8/17/2007
12	PHMSA-PL3600 Root Cause/Incident Investigation Course	Successful	8/21/2009
13	PHMSA-PL3292 Safety Evaluation of Inline Inspection (ILI)/Pigging Programs Course	Successful	6/11/2010
14	PHMSA-PL3293 Corrosion Control of Pipeline Systems Course	Successful	6/25/2010
15	PHMSA-PL3291 Fundamentals of (SCADA) System Technology and Operation Course	Successful	4/1/2011
16	PHMSA-PL3355 Safety Evaluation of Control Room Management Programs	Successful	8/29/2014
17	PHMSA-PL1245 Safety Evaluation of Distribution Integrity Management Programs (DIMP) Course	Successful	4/23/2015
18	PHMSA-PL2258 Safety Evaluation of Hazardous Liquid Pipeline Systems Course	Successful	5/15/2015
19	PHMSA-PL3267 Fundamentals of Integrity Management Course	Successful	7/31/2015
20	PHMSA-PL3306 External Corrosion Direct Assessment (ECDA) Field Course	Successful	8/14/2015
21	PHMSA-PL2294 Safety Evaluation of Hazardous Liquid Pipeline (IM) Programs Course	Successful	4/28/2017
22	PHMSA -PLWK31A Inspection Assistant Training Workshop	Successful	11/9/2018
23	PHMSA-PH3275 General Safety Awareness for Inspectors and Investigators	Successful	5/29/2020

(20) Cast Iron Bare Steel Replacement Program:

A cast iron/bare steel replacement program (“CIBS Program”) shall be implemented that will be based on a construction year (April through December). By no later than January 15 of each year, EnergyNorth shall provide a copy of its CIBS Plan, defined below, to Staff for review and comment. EnergyNorth shall meet with Staff in technical sessions to discuss the plan to be implemented for the subsequent construction year. After review by Staff, EnergyNorth will take all reasonable steps to carry out and implement the plan, taking into account Staff comments.

The CIBS plan, which will cover cast iron and bare steel pipe replacements, will describe each replacement project, itemizing the proposed projects by general category, along with the targeted amount of investment to be made during the following construction year, which budget shall not be less than the CIBS base amount for capital expenditures described in paragraph e below (“CIBS Plan”). The CIBS Plan will prioritize cast iron and bare steel pipe replacements based on factors including leakage, material condition, age and other components affecting pipe integrity. The CIBS Plan will not address replacement of cast iron and bare steel pipes required in public works projects and/or carried out pursuant to the Cast Iron Encroachment Policy referenced in Condition 12 above.

EnergyNorth agrees to engage in an annual evaluation and selection process to identify and target investments to be proposed in the CIBS Plan, as follows:

- a. It will undertake an annual review of the performance of its distribution system as it relates to the integrity of its cast iron and bare steel pipelines. This review will provide: (1) a detailed analysis of leak activity over the preceding ten years on the bare steel and cast iron gas mains, and (2) an evaluation of which main segments represent the highest priority segments for replacement. Consideration will be given to the age of the main, the date the leak(s) occurred, leak classification, type of leak, number of clamps used in leak repair, condition of main when repaired, specific leak location, building types in the area of the main segment and quantity of bare steel services attached to the potential segment to be replaced.
- b. Adjustments in the priority of main segment replacement could be made due to planned paving projects, public relations, or identification of new main segments by operating personnel in the field that were not captured through EnergyNorth’s data systems.
- c. Using the process identified in (a) and (b) above, EnergyNorth shall rank and prioritize those mains to be replaced in the associated construction year and provide its plans to the Commission.
- d. Categories of spending will include the following:

- 1.1 unprotected bare steel main replacement, as determined by the evaluation and selection process;
- 1.2. cast iron main replacement as determined by the evaluation and selection process;
- 1.3. cast iron or bare steel main replacement candidates requested by field operating personnel; and
- 1.4. bare steel services replaced as a result of a segment of bare steel main or cast iron main that is selected.

Categories of spending that are not included in the CIBS:

- 2.1. costs of moving inside meters to outside;
- 2.2. costs of reconnecting existing plastic services or existing coated steel services from cast iron mains or bare steel mains to the newly installed replacement main;
- 2.3. costs of any mains replaced made of polyethelene or steel that have a protective coating;
- 2.4. costs of any mains that are abandoned;
- 2.5. costs of coated steel mains that “act as bare steel mains” such as poorly coated steel mains or disbonded steel mains, unless approved by the Safety Division;
- 2.6. incremental costs of upsizing with the exception of (n) below; and
- 2.7 carryover costs in aggregate exceeding 5% of the approved estimated total expenditures under the CIBS program for the construction year, unless approved by the Safety Division. Such carryover costs include items such as restoration costs not incurred during the construction year.
- 2.8 Replacements made under the Cast Iron Encroachment Policy are not eligible for accelerated rate recovery in the Cast Iron/Bare Steel Program unless a special circumstance is approved by the Safety Division.

e) EnergyNorth shall bear the initial \$500,000 of capital expenditures under the CIBS program (“the CIBS Base Amount”) (in accordance with the Handy Whitman index). The CIBS Base Amount excludes replacement projects required by public works projects and/or carried out pursuant to the Cast Iron Encroachment Policy referenced in Condition 12. Provided that investments were made in accordance with the approved CIBS plan, EnergyNorth will be allowed a permanent increase in its base distribution delivery rates to recover the annual revenue requirement for those investments that are found to be reasonable and prudent made in the preceding construction year and in excess of the CIBS Base Amount. The permanent capital investment recovery allowance will not take effect until the actual costs of the

previous construction year are approved by the Commission. Petitions for cost recovery will be submitted annually thereafter not later than May 1, for an effective date of July 1.

f) After Staff completes the review of the CIBS Plan for a given construction year, EnergyNorth shall track all capital investments made in accordance with the approved CIBS Plan. EnergyNorth will reconcile actual capital expenditures with the CIBS Plan targets at the conclusion of the CIBS Plan period.

g) EnergyNorth agrees that it will file a report with the Commission on May 15 of each year detailing the actual amount of capital investments made in accordance with implementing the CIBS Plan during the prior construction year (“CIBS Report”). The report will include a calculation of the incremental revenue requirement associated with the capital investments in rate base that exceeds the CIBS Base Amount, using the Commission-approved imputed or actual capital structure and cost of capital determined using the Commission-approved return on equity and cost of debt. If the Commission has not made a final determination in the first rate case by the time the first adjustment is to be calculated, a reasonable proxy will be used for the rate calculation and an adjustment will be made to the revenue requirement to reconcile to the approved cost of capital rates when the rates from the first rate case go into effect.

h) EnergyNorth agrees to file its annual CIBS Report on the prior construction year’s activities at the time it makes its rate adjustment filing on May 15. The Settling Parties and Staff understand that, in implementing the CIBS Plan, the circumstances encountered during the year may require reasonable deviations from the original plan. In such cases, EnergyNorth shall include an explanation of any deviations in the report. For cost recovery purposes, EnergyNorth shall have the burden to show that any deviations were due to circumstances out of its reasonable control or, if within its control, were reasonable and prudent. The CIBS Report shall include a breakdown of footage replaced by municipal projects that involve Cast Iron /Bare Steel as well the footage replaced under the Cast Iron Encroachment Policy. Samples of reporting that Staff has reviewed previously are included in Attachment A.

i) The CIBS Program will remain in place through and beyond EnergyNorth’s future rate cases until terminated by the Commission or by mutual agreement at the end of a given construction year, with a final capital allowance pertaining to the final year.

j) EnergyNorth can elect to not finalize its CIBS Plan until after the winter frost patrol ends in early April. By May 1, EnergyNorth shall finalize actual projects and provide a copy of the final CIBS Plan to Staff. In addition, the priority rankings of main segments for replacement will be subject to change over the course of the year due to new information. In such case, if EnergyNorth believes it is prudent to change

the rankings from the approved CIBS Plan, it will notify Staff, stating the reasons for the change prior to construction. If Staff does not believe that particular components of the revised plans are reasonable and the matter is not resolved between EnergyNorth and Staff, Staff may object and the matter may be referred to the Commission for resolution.

k) EnergyNorth acknowledges that Staff review will not relieve EnergyNorth of its obligation to operate its business and maintain safe, reliable service through expenditures and other capital investments in the ordinary course of business that are not set forth in the CIBS Plan, nor will it bind Staff to a particular position regarding the adequacy and/or effectiveness of the plan.

l) However, EnergyNorth will be authorized to include in its CIBS Plan the replacement of cast iron and bare steel pipe located in the vicinity of public works projects, where replacement is not required as a part of the project, but permitted for convenience or other reasons, as determined by the Safety Division.

m) EnergyNorth shall provide GIS Mapping or other electronic means that shows the project scope with each submittal of the CIBS Plan.

n) No upsizing of pipe diameter shall be allowed for cost recovery within the CIBS Program on 60 psig systems. For low pressure systems (12 inches water column and below) no upsizing shall be allowed for cost recovery within the CIBS Program except for 3" nominal diameter low pressure pipe replaced with 4" nominal diameter pipe and other special circumstances as approved by the Safety Division.

o) EnergyNorth shall provide the Commission Staff with actual cutouts of the worst section within any bare steel main segment replaced prior to reconciling any cost adjustments for associated construction season. Cutouts shall be approximately 12 inches to 24 inches in length.

p) EnergyNorth shall provide a written report accompanying the actual cutouts in section 20(o) above that includes: photographs the replaced bare steel segment; a general description of the condition of the pipe; the street address from which it was taken; age of material; original wall thickness; measured depth of deepest pit of the cutout; operating pressure of replaced pipe; pH of soil condition of cutout surrounds; results of testing for microbiological acid producing bacteria (APB) and sulfate reducing bacteria (colonies per ML); and identification of the threshold of high bacteria counts.

II. Additional Granite State Electrical Safety Conditions (Electrical Underground Facility Protection)

Underground Damage Prevention Program Enhancement

1. Granite State Electric Company (Granite State) will institute a new Locating/Mark-Out Policy within the existing Underground Damage Prevention Program. The Locating/Mark-Out Policy will provide enhanced public safety by increasing the commitments and responsibilities associated with locating and marking private underground residential facilities within Granite State's franchise territory. Notwithstanding the exemption contained in RSA 374:53 concerning facilities not owned by the operator, Granite State accepts the additional responsibility of locating privately owned, residential underground electrical facilities pursuant to excavation notifications, and agrees to establish the Locating/Mark-Out Policy ("Policy") described below.

Policy Implementation and Potential Discontinuation

2. Locating/Mark-Out Policy will be implemented within 120 days of the Closing Date.
3. Granite State reserves the right to discontinue the Policy with Staff review and consent but without the necessity of obtaining formal Commission approval if the incremental costs of implementing the Policy, not including advertising and marketing costs or other non-field costs, exceed \$10,000 annually. In the event Granite State disagrees with Staff's decision not to consent, it may file a request for review with the Commission. Granite State will file written notification of any discontinuation of the Policy with the Commission.

Policy Requirements

4. Within Granite State's franchise territory, Granite State will mark privately owned, residential underground facilities up to the meter and including the service entrance upon receipt of notifications received via the One Call Notification System.
5. The electrical service includes primary service voltage levels as well as secondary voltage levels.
6. The electrical service also includes service from aerial distribution systems as well as underground systems.
7. Notifications received for underground excavation involving commercial properties are not included in the waiver or this Policy.
8. The location and marking of excavations involving underground electrical facilities beyond the meter, such as from a house to a barn, lamp post, pool, shed and other structures, are not included in this Policy.

9. Granite State's responsibility under the Policy shall not extend beyond marking out the facility, and does not include repairs to such facilities.
10. Field Markouts made under the Policy shall clearly indicate private electrical facilities that are not owned or operated by GSE.
11. During each year the Policy is in effect, Granite State shall maintain a level of accuracy for markouts made under the Policy that is commensurate with the level achieved for its own facilities. An audit or equivalent method may be used to determine the accuracy percentage of Policy markouts.
12. Granite State will not be required to mark such services defined in this Policy where the customer refuses Granite State access or denies such markout service.

Program Reporting

13. By January 31, 2013, Granite State shall submit an initial report to the Safety Division of the average accuracy level for markouts made of underground facilities pursuant to the One Call Notification System, and the derivation with sufficient detail supporting the determination of the average used to measure the accuracy level for the Policy. The initial report shall indicate the levels of markout accuracy obtained for Granite State facilities as well as privately owned, residential facilities. The report shall also contain the elements listed in item 14 below. Staff shall review and comment on the submittal, and Granite State shall incorporate Staff's comments into subsequent reports in following years.
14. Granite State shall keep track of costs expended and associated data, including but not limited to: number of notifications received, number of markouts made, address locations of markouts, quantity and locations of customer refusals, and dates of services performed. A summary report with subtotals by month shall be submitted to Staff annually, no later than January 31st for the previous calendar year's Policy.
15. The new Policy does not require Granite State to file a monthly E-26 report for markouts made under the Policy.

Liberty Utilities Cast Iron Bare Steel Program												
	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Address	Concord St	2-7 Cornell St	20-34 School St	18-56 Ash St	5-19 Lemon St	1-34 Dickerman St	Pennichuck St & Caron Ave	48 NEWBURY ST, NAS (ON UNDERHILL ST)	22-50 Bridge St, NAS	5-67 Williams St NAS	1-132 Allids St	8 Acton St
Town	Concord	Concord	Hudson	Nashua	Nashua	Nashua	Nashua	Nashua	Nashua	Nashua	Nashua	Nashua
Pipe Size	2"	2"	2"	2"	2"	2"	2"	2"	2"	2"	2"	2"
Install Date	1953	1955	1947	1928	1902/1925	1902/1925	1956/1960	1917 est	1904	1940	1940	1950
Wall Thickness	0.166 in	Unknown	Unknown	Unknown	Unknown	0.154 in	0.143 in	0.188 in	0.188 in	0.154 in	0.154 in	0.154 in
Age	55	54	63	83	110	111	58	99 est	112	77	78	69
Pressure	12 in water column	60 psig	12 in water column	12 in water column	12 in water column	12 in water column	12 in water column	12 in water column	12 in water column	12 in water column	12 in water column	12 in water column
Ground PH	7 to 8	7 to 8	7.5	6.5	6	7.5	6	6	6	7.5	6	7
Pipe Condition	Deep pitting/significant wall loss	Good condition Coated steel	Deep Pitting/Fair to poor condition	100% wall loss/Very poor condition	100% wall loss/very poor condition	90% wall loss/poor condition	100% wall loss/very poor condition	100% wall loss/very poor condition	50% wall loss in pits/moderate condition	30% wall loss in pits	100% wall loss/very poor condition	100% wall loss/ moderate pitting
Address	Woodman St	83 Pleasant St	2-18 Faxon St & 1-7 Faxon Ave	55-100 W North St	2-13 Grove St	1-44 Revere St & Fernwood St	90 Dodge St	49 Summer St (on Salem St)	18 Howard St, NAS	14-38 Brook St, NAS	1-21 Fowell Ave	Nottingham St & Highland St
Town	Concord	Concord	Nashua	Nashua	Nashua	Nashua	Nashua	Nashua	Nashua	Nashua	Nashua	Hudson
Pipe Size	1.5"	2"	2"	8"	2"	2"	2"	2"	2"	2"	2"	1.25"
Install Date	1929	1900	1912	1960	1910	1902/1925	1959	1910	1912	1924	1924	1959
Wall Thickness	0.130 in	Unknown	Unknown	Unknown	Unknown	0.188 in	0.160 in	0.218 in	0.188 in	0.154 in	0.154 in	0.140 in
Age	79	109	98	51	102	111	55	91	104	93	94	60
Pressure	12 in water column	12 in water column	12 in water column	12 in water column	12 in water column	12 in water column	12 in water column	12 in water column	12 in water column	12 in water column	12 in water column	60 psig
Ground PH	7 to 8	6	7.5	6	7	7	6	6	6	7	7	6
Pipe Condition	Deep pitting/significant wall loss	some areas of pitting and wall loss	Multiple large holes/very poor condition	Deep Pitting/Poor Condition	Deep pitting/poor condition	37% wall loss/moderate condition	100% wall loss/very poor condition	100% wall loss/very poor condition	100% wall loss/very poor condition	25-50% wall loss pits	30-50% wall loss pits	30-50% wall loss/ selective corrosion
Address	Connell St	25-28 Depot St	116-130 Bowers St	17-28 Sunset Dr	93 Walnut St	2-15 Columbia Ave, NAS	4-26 Nutt St NAS	171-185 Concord St	Salvail Ct & Canal St			
Town	Hudson	Franklin	Nashua	Nashua	Nashua	Nashua	Nashua	Nashua	Nashua			
Pipe Size	2"	2"	2"	2"	2"	2"	2"	2"	2"			
Install Date	1928	1931	1913	Unknown	1913	1915	1924	1954	1928			
Wall Thickness	0.139 in	unknown	Unknown	0.188 in	0.160 in	0.188 in	0.154 in	0.154 in	0.154 in			
Age	80	78	97	Unknown	101	101	93	64	91			
Pressure	12 in water column	60 psig	12 in water column	60 psig	12 in water column	12 in water column	12 in water column	12 in water column	12 in water column			
Ground PH	6 to 7	6	7	6	6	6	6	7	7			
Pipe Condition	Deep pitting/significant wall loss	Good condition Coated steel	Heavy wall loss/poor condition	100% wall loss/very poor condition	100% wall loss/very poor condition	100% wall loss/very poor condition	100% wall loss/very poor condition	100% wall loss/very poor condition	10-20% wall loss/ light corrosion			
Address	Gloria Ave	80-113 Blossom St	1-19 Perkins St & 41-46 Bradley St	8-18 Maple St	57 Spaulding St	31-70 McKean St, NAS	3-75 Blossom St, NAS	126-226 Pine St	Second St & Oakwood St			
Town	Hudson	Nashua	Concord	Nashua	Nashua	Nashua	Nashua	Hudson	Hudson			
Pipe Size	2"	2"	1.5"	2"	2"	2"	2"	2"	2"			
Install Date	1954	1908 & 1913	1955	1957	1956	1923	1915	1957	1949			
Wall Thickness	0.148 in	Unknown	Unknown	0.154 in	0.139 in	0.188 in	0.154 in	0.154 in	0.154 in			
Age	54	101	55	56	58	93	102	61	70			
Pressure	60 psig	12 in water column	12 in water column	12 in water column	12 in water column	12 in water column	12 in water column	12 in water column	12 in water column			
Ground PH	7 to 8	5	7	6.5	6	6	7	6	7			
Pipe Condition	Fair Condition	Extremely poor condition	Deep pitting/fair to poor condition	39% wall loss/moderate condition	100% wall loss/very poor condition	100% wall loss/very poor condition	100% wall loss in svc connect/mod corros	100% wall loss in pits/very poor condition	Heavy corrosion/50% wall loss open seam			
Address	Library St	5-11 Bristol St	Chester St -59 Berkeley St	3-25 Pratt St & Zellwood St	95 Shaker Rd	5-18 Edwin St, NAS	28-36 Ffield St, NAS					
Town	Hudson	Nashua	Nashua	Nashua	Concord	Nashua	Nashua					
Pipe Size	4"	4"	2"	2"	1"	2"	2"					
Install Date	1908	1947, 1951, 1954, 1957	1947	1894/1914	Unknown	1961	1959					
Wall Thickness	0.234 in	Unknown	Unknown	0.188 in	0.133 in	0.188 in	0.154 in					
Age	100	62	63	119	Unknown	55	58					
Pressure	12 in water column	12 in water column	12 in water column	60 psig	60 psig	12 in water column	12 in water column					
Ground PH	6	7	7	6	6	6	7					
Pipe Condition	Fair Condition	Moderate uniform pitting/Fair Condition	Visible holes/Very poor condition	100% wall loss/very poor condition	27% wall loss/fair condition	100% wall loss/very poor condition	30% wall loss in pits/gen corros pitting					
Address	Mulberry St	12-25 Buck St	5-21 Ridge St	249 Medford St	2-16 Stevens St, NAS	75-235 Lake St, NAS						
Town	Nashua	Nashua	Nashua	Nashua	Nashua	Nashua						
Pipe Size	2"	2"	2"	2"	2"	2"						
Install Date	1912	1901, 1903 & 1911	Unknown	1956/1960	1904	1900						
Wall Thickness	96	108	0.154 in	0.160 in	0.188 in	0.154 in						
Age	108	111	Unknown	58	112	117						
Pressure	12 in water column	12 in water column	12 in water column	60 psig	12 in water column	12 in water column						
Ground PH	7 to 8	6 to 7	6.5	6	7	7						
Pipe Condition	Concentrated deep pitting	Heavy Pitting/Poor Condition	39% wall loss/moderate condition	100% wall loss/very poor condition	100% wall loss/very poor condition	30% wall loss/gen scaling and pitting						
Address	Prescott St & Putnam St	2-4 Fourth St	1-6 Jewell Ln	348 Lincoln St	4-22 Peabody St TIL							
Town	Nashua	Nashua	Nashua	Manchester	Tilton							
Pipe Size	2"	2"	2"	3"	4"							
Install Date	1924	1926	1947	1954	1931							
Wall Thickness	Not Taken Due to Pipe Condition	Unknown	0.154 in	0.234 in	0.237 in							
Age	84	83	66	60	86							
Pressure	12 in water column	12 in water column	12 in water column	60 psig	60 psig							
Ground PH	6 to 7	6	7	6	7							
Pipe Condition	Pipe breakage and pit holes	Significant deep pitting/Poor Condition	32% wall loss/moderate condition	12% wall loss/fair condition	20% wall loss/light corros & pitting							
Address	Reed Court	31-39 Newbury St										
Town	Nashua	Nashua										
Pipe Size	2"	2"										
Install Date	1908	1898, 1910, 1928										
Wall Thickness	0.121 in	Unknown										
Age	100	111										
Pressure	12 in water column	12 in water column										
Ground PH	6	3 to 4										
Pipe Condition	Significan wall Loss	Significant wall loss/Poor condition										
Address		5-21 Winter St										
Town		Tilton										
Pipe Size		4"										
Install Date		1931										
Wall Thickness		Unknown										
Age		78										
Pressure		60 psig										
Ground PH		7										
Pipe Condition		Fair Condition										
63	8	9	5	2	2	7	7	2	6	7	4	4
Samples												

FY	Age
2009-1	55
2009-2	79
2009-3	80
2009-4	54
2009-5	100
2009-6	96
2009-7	84
2009-8	100
2010-1	54
2010-2	109
2010-3	78
2010-4	101
2010-5	62
2010-6	108
2010-7	83
2010-8	111
2010-9	78
2011-1	63
2011-2	98
2011-3	97
2011-4	55
2011-5	63
2012-1	83
2012-2	51
2013-1	110
2013-2	102
2014-1	111
2014-2	111
2014-3	
2014-4	56
2014-5	119
2014-6	
2014-7	66
2015-1	58
2015-2	55
2015-3	101
2015-4	58
2015-5	
2015-6	58
2015-7	60
2016-1	99
2016-2	91
2017-1	112
2017-2	104
2017-3	101
2017-4	93
2017-5	55
2017-6	112
2018-1	77
2018-2	93
2018-3	93
2018-4	102
2018-5	58
2018-6	117
2018-7	86
2019-1	78
2019-2	94
2019-3	64
2019-4	61
2020-1	69
2020-2	60
2020-3	91
2020-4	70
Sum	63 83.1

LIBERTY UTILITIES BARE STEEL REPLACEMENT PROGRAM

2009-2020

Prepared by the New Hampshire Public Utilities Commission
Safety Division

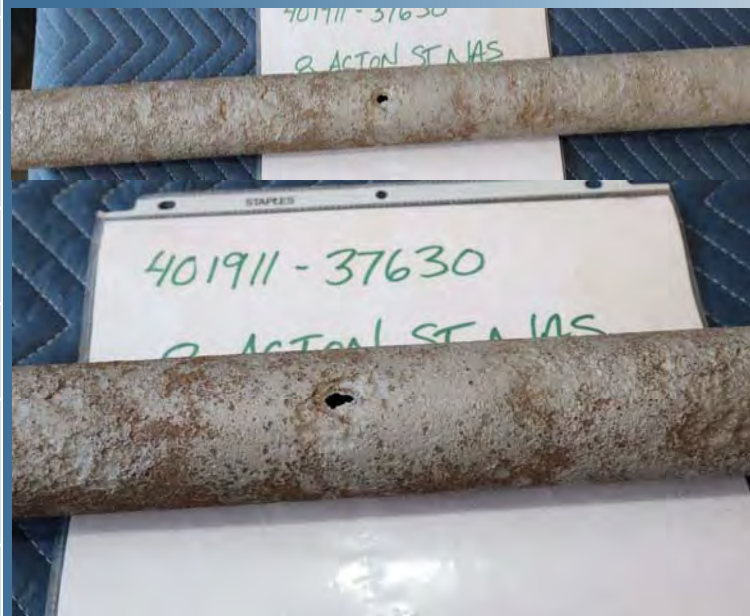


2020 Bare Steel Replacement Reports



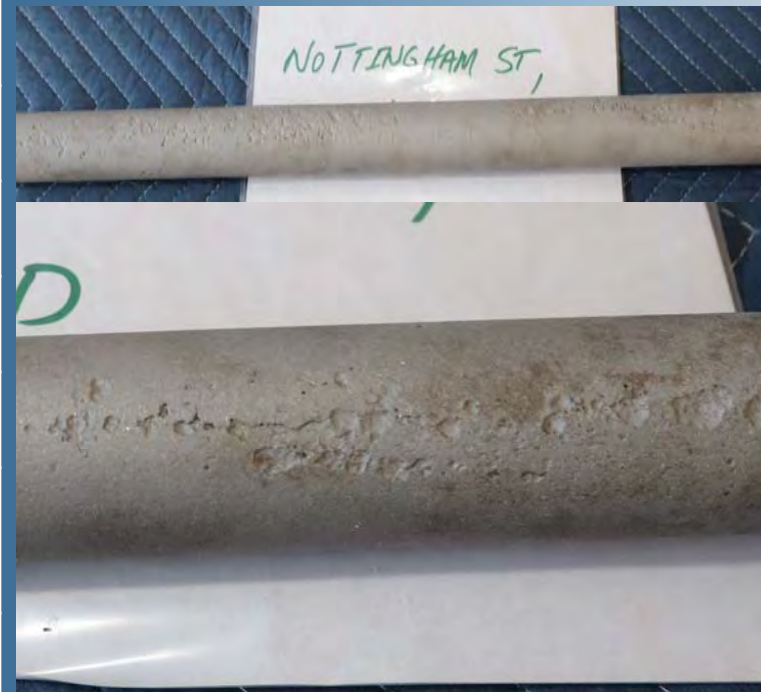
FY 2020

Address	8 Acton St
Town	Nashua
Pipe Size	2"
Install Date	1950
Wall Thickness	0.154"
Age	69
Pressure	12 in water column
Ground PH	7
Pipe Condition	100 % wall loss/ moderate pitting



FY 2020

Address	Nottingham St & Highland St
Town	Hudson
Pipe Size	1.25"
Install Date	1959
Wall Thickness	0.140"
Age	60
Pressure	60 psig
Ground PH	6
Pipe Condition	30-50% wall loss/ selective corrosion



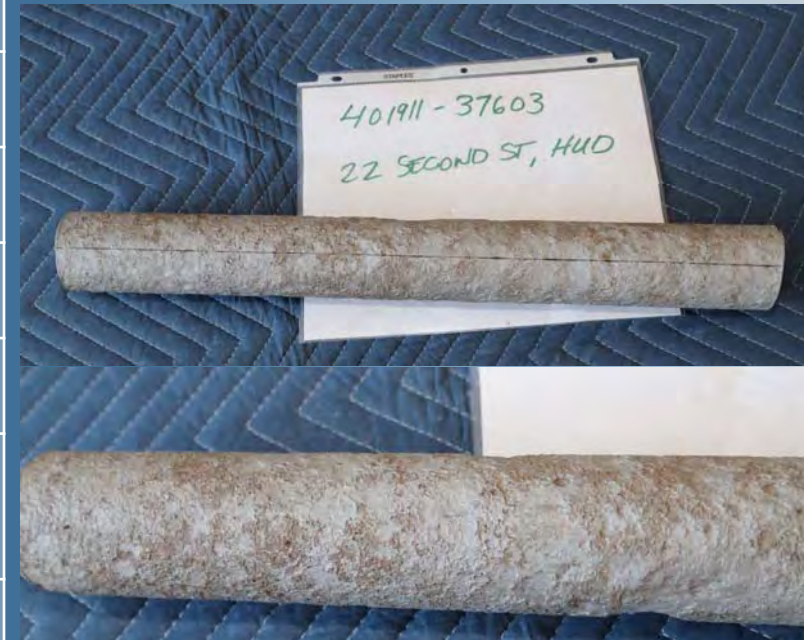
FY 2020

Address	Salvail Ct & Canal St
Town	Nashua
Pipe Size	2"
Install Date	1928
Wall Thickness	0.154"
Age	91
Pressure	12 in water column
Ground PH	76
Pipe Condition	10-20% wall loss/ light corrosion



FY 2020

Address	Second St & Oakwood St
Town	Hudson
Pipe Size	2"
Install Date	1949
Wall Thickness	0.154"
Age	70
Pressure	12 in water column
Ground PH	7
Pipe Condition	Heavy corrosion/50% wall loss/ open seam



2019 Bare Steel Replacement Reports



FY 2019

Address	1-132 Allds St Mulvaney St sample
Town	Nashua
Pipe Size	2"
Install Date	1940
Wall Thickness	0.154"
Age	78
Pressure	12 in water column
Ground PH	6
Pipe Condition	100 % wall loss in areas



FY 2019

Address	1-21 Fowell Ave
Town	Nashua
Pipe Size	2"
Install Date	1924
Wall Thickness	0.154"
Age	94
Pressure	12 in water column
Ground PH	7
Pipe Condition	30-50% wall loss in pits



FY 2019

Address	171-185 Concord St Damon Ave sample
Town	Nashua
Pipe Size	2"
Install Date	1954
Wall Thickness	0.154"
Age	64
Pressure	12 in water column
Ground PH	7
Pipe Condition	100% wall loss in pits



FY 2019

Address	126-226 Pine St Lovell St sample
Town	Nashua
Pipe Size	2"
Install Date	1957
Wall Thickness	0.154"
Age	61
Pressure	12 in water column
Ground PH	6
Pipe Condition	100% wall loss in pits

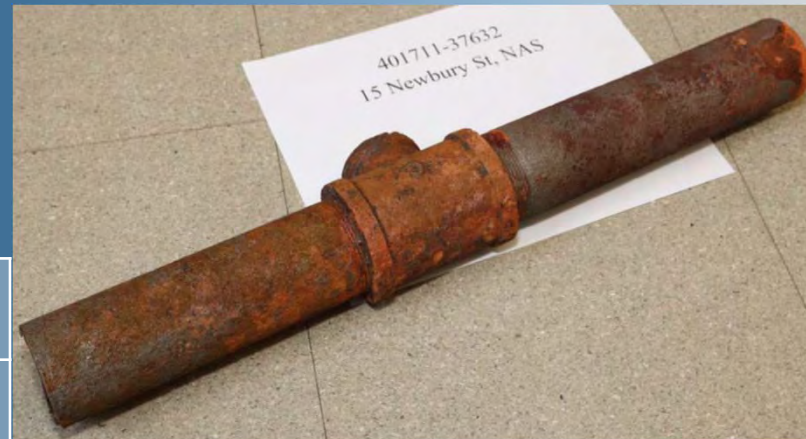


2018 Bare Steel Replacement Reports



FY 2018

Address	5-67 Williams St
Town	Nashua
Pipe Size	2"
Install Date	1940
Wall Thickness	0.154"
Age	77
Pressure	12 in water column
Ground PH	7.5
Pipe Condition	30% wall loss in pits



FY 2018

Address	14-38 Brook St
Town	Nashua
Pipe Size	2"
Install Date	1924
Wall Thickness	0.154"
Age	93
Pressure	12 in water column
Ground PH	7
Pipe Condition	25-50% wall loss in pits



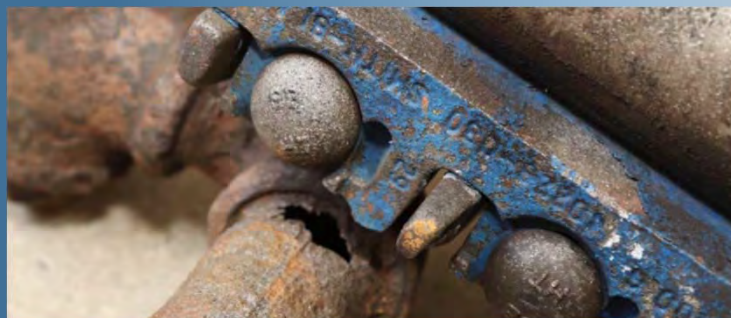
FY 2018

Address	4-26 Nutt St
Town	Nashua
Pipe Size	2"
Install Date	1924
Wall Thickness	0.154"
Age	93
Pressure	12 in water column
Ground PH	6
Pipe Condition	100% wall loss in pits Heavy Corrosion



FY 2018

Address	3-75 Blossom St
Town	Nashua
Pipe Size	2"
Install Date	1915
Wall Thickness	0.154"
Age	102
Pressure	12 in water column
Ground PH	6
Pipe Condition	100% wall loss in pits Very Poor Condition



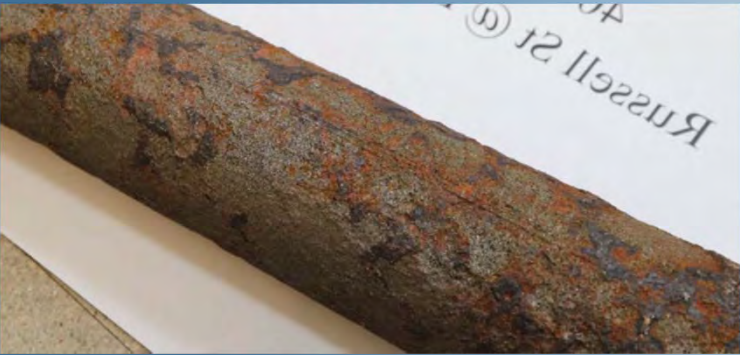
FY 2018

Address	28-36 Fifield St & Winnwood St
Town	Nashua
Pipe Size	2"
Install Date	1959
Wall Thickness	0.154"
Age	58
Pressure	12 in water column
Ground PH	7
Pipe Condition	30% wall loss in pits General Corrosion/Pitting



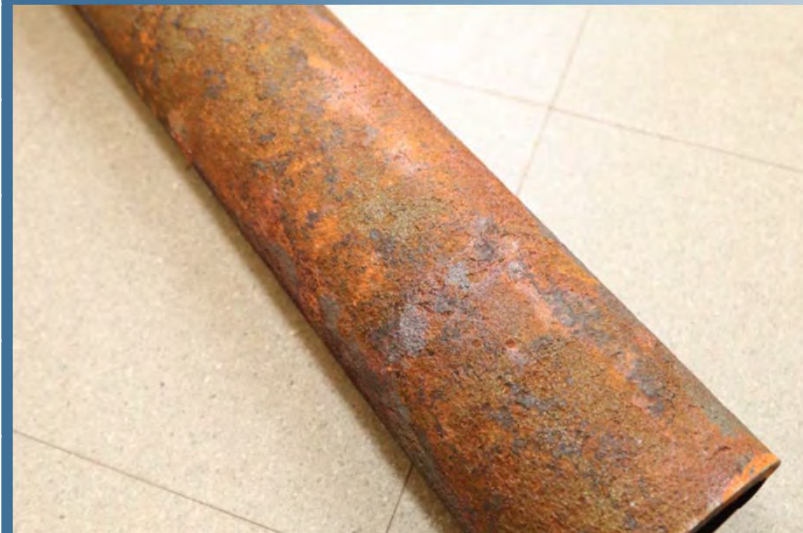
FY 2018

Address	75-235 Lake St
Town	Nashua
Pipe Size	2"
Install Date	1900
Wall Thickness	0.154"
Age	117
Pressure	12 in water column
Ground PH	7
Pipe Condition	30% wall loss in pits General Scaling/Pitting



FY 2018

Address	4-22 Peabody St
Town	Tilton
Pipe Size	4"
Install Date	1931
Wall Thickness	0.237"
Age	86
Pressure	60 psig
Ground PH	7
Pipe Condition	20% wall loss in pits Light Corrosion/Pitting

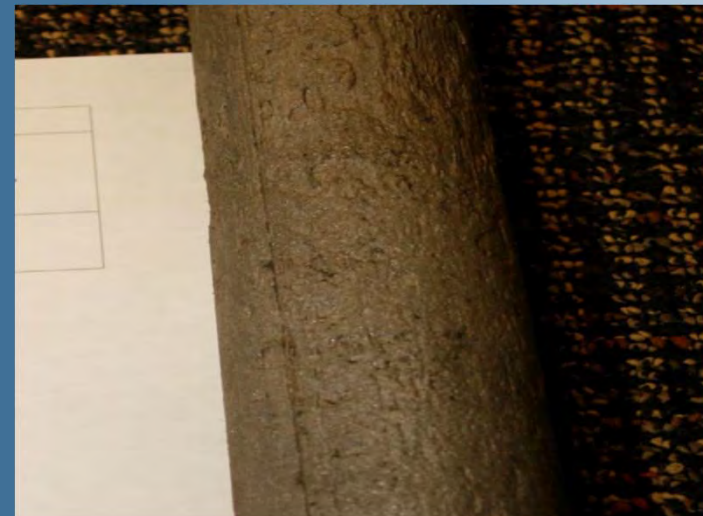


2017 Bare Steel Replacement Reports



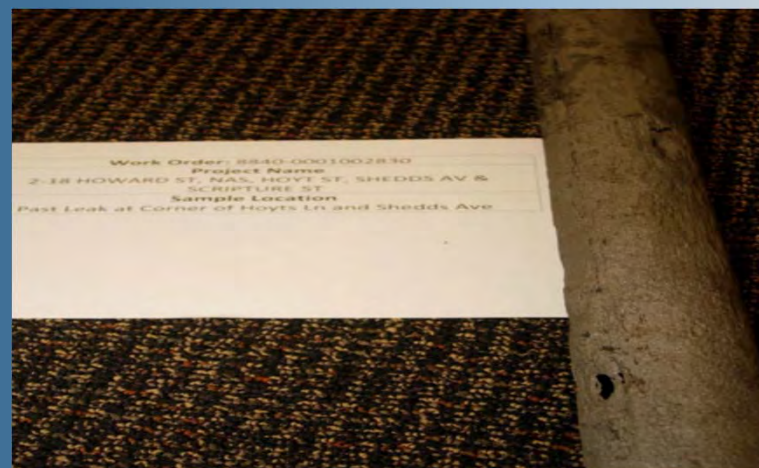
FY 2017

Address	22-50 Bridge St
Town	Nashua
Pipe Size	2"
Install Date	1904
Wall Thickness	0.188 in
Age	112
Pressure	12 in water column
Ground PH	6
Pipe Condition	50% Wall Loss/ Poor Condition



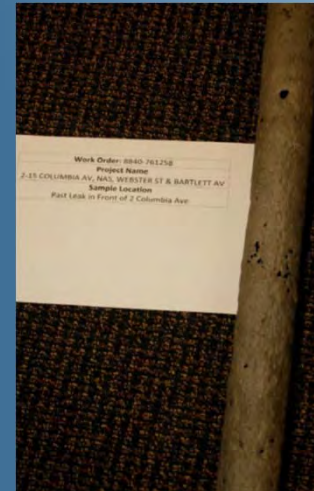
FY 2017

Address	18 Howard St
Town	Nashua
Pipe Size	2"
Install Date	1912
Wall Thickness	0.188 in
Age	104
Pressure	12 in water column
Ground PH	6
Pipe Condition	100% Wall Loss/ Very Poor Condition



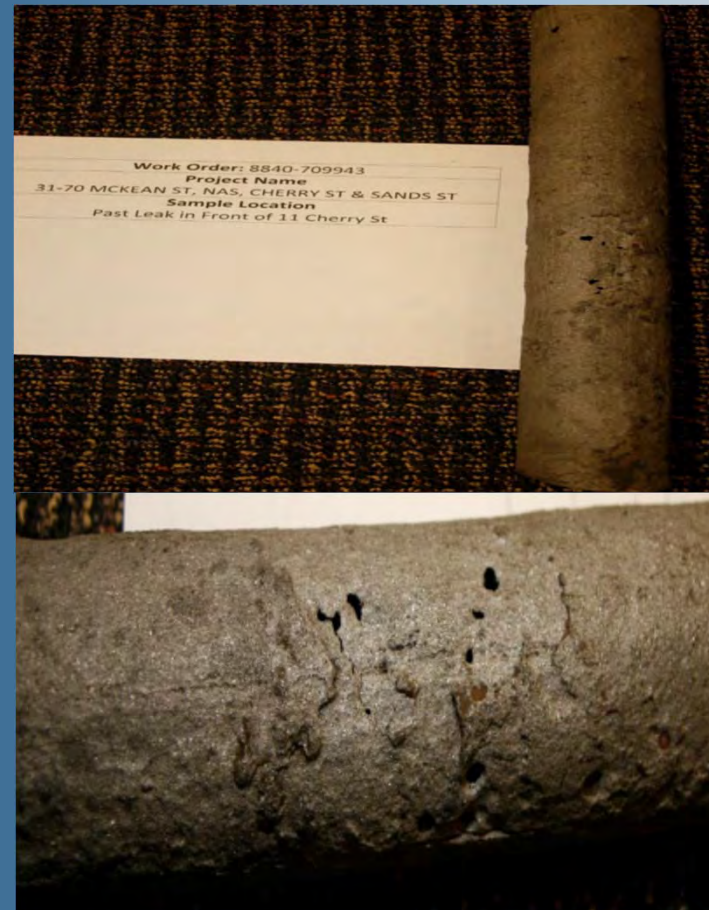
FY 2017

Address	2-15 Columbia Ave
Town	Nashua
Pipe Size	2"
Install Date	1915
Wall Thickness	0.188 in
Age	101
Pressure	12 in water column
Ground PH	6
Pipe Condition	100% Wall Loss/ Very Poor Condition



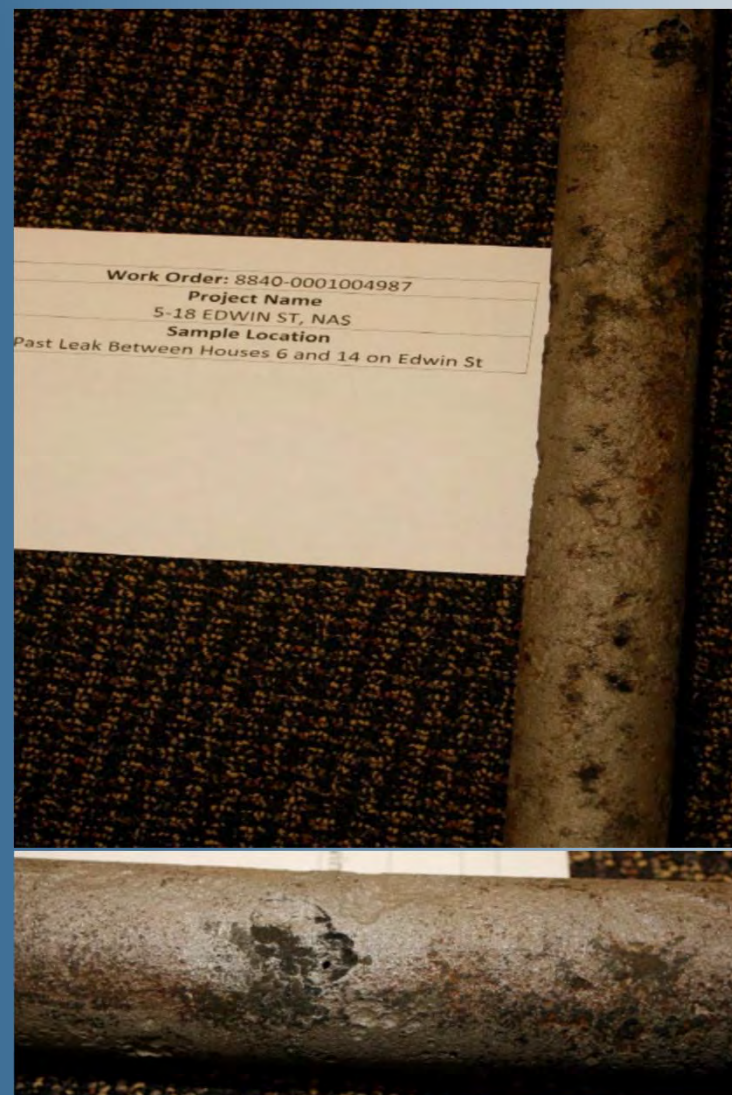
FY 2017

Address	31-70 McKean St
Town	Nashua
Pipe Size	2"
Install Date	1923
Wall Thickness	0.188 in
Age	93
Pressure	12 in water column
Ground PH	6
Pipe Condition	100% Wall Loss/ Very Poor Condition



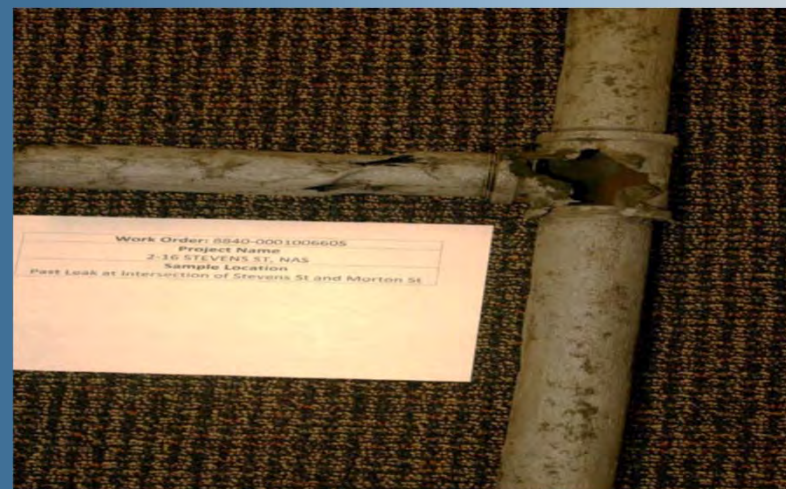
FY 2017

Address	5-18 Edwin St
Town	Nashua
Pipe Size	2"
Install Date	1961
Wall Thickness	0.188 in
Age	55
Pressure	12 in water column
Ground PH	6
Pipe Condition	100% Wall Loss/ Very Poor Condition



FY 2017

Address	2-16 Stevens St
Town	Nashua
Pipe Size	2"
Install Date	1904
Wall Thickness	0.188 in
Age	112
Pressure	12 in water column
Ground PH	7
Pipe Condition	100% Wall Loss/ Very Poor Condition



2016 Bare Steel Replacement Reports



FY 2016

Address	48 Newbury St NAS (On Underhill St)
Town	Nashua
Pipe Size	2"
Install Date	Unknown
Wall Thickness	0.188 in
Age	Unknown
Pressure	12 in water column
Ground PH	6
Pipe Condition	100% Wall Loss/ Very Poor Condition



FY 2016

Address	49 Summer St (On Salem St)
Town	Nashua
Pipe Size	2"
Install Date	1924
Wall Thickness	0.218 in
Age	91
Pressure	12 in water column
Ground PH	6
Pipe Condition	100% Wall Loss/ Very Poor Condition



2015 Bare Steel Replacement Reports



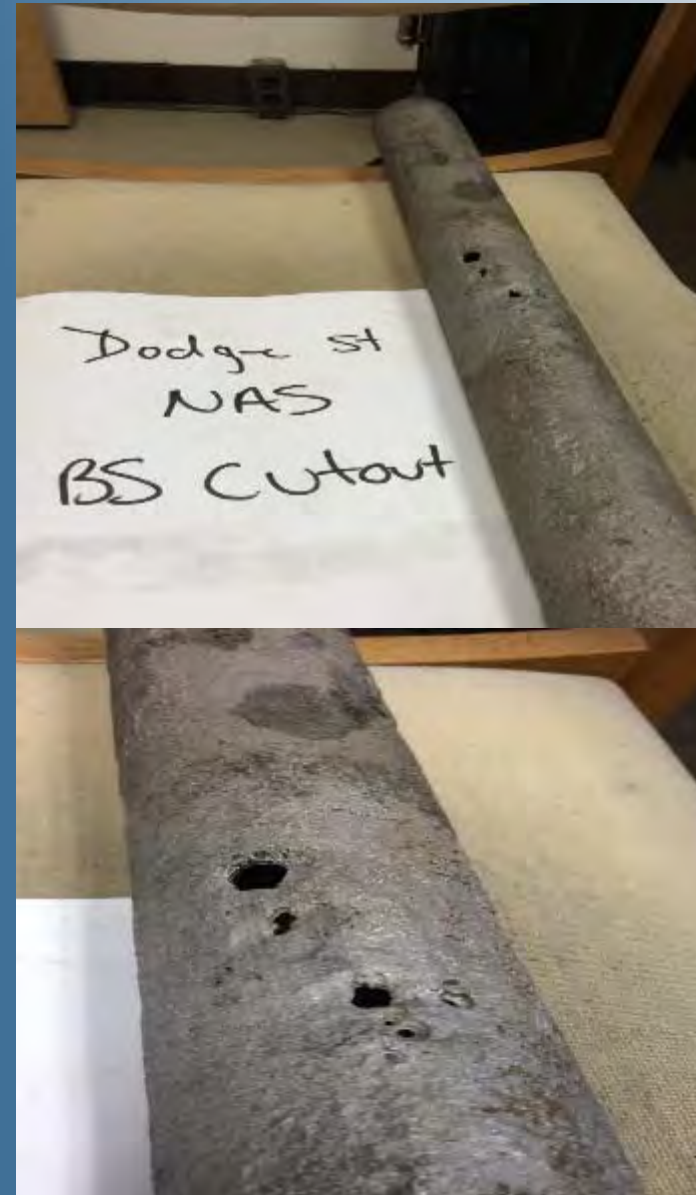
FY 2015

Address	Pennichuck St & Caron Ave
Town	Nashua
Pipe Size	2"
Install Date	1956/1960
Wall Thickness	0.143 in
Age	58
Pressure	12 in water column
Ground PH	6
Pipe Condition	100% Wall Loss/ Very Poor Condition



FY 2015

Address	90 Dodge St
Town	Nashua
Pipe Size	2"
Install Date	1959
Wall Thickness	0.160 in
Age	55
Pressure	12 in water column
Ground PH	6
Pipe Condition	100% Wall Loss/ Very Poor Condition



FY 2015

Address	93 Walnut St
Town	Nashua
Pipe Size	2"
Install Date	1913
Wall Thickness	0.160 in
Age	101
Pressure	12 in water column
Ground PH	6
Pipe Condition	100% Wall Loss/ Very Poor Condition



FY 2015

Address	57 Spaulding St
Town	Nashua
Pipe Size	2"
Install Date	1956
Wall Thickness	0.139 in
Age	58
Pressure	12 in water column
Ground PH	6
Pipe Condition	100% Wall Loss/ Very Poor Condition



FY 2015

Address	95 Shaker Road (Shaker Rd School)
Town	Concord
Pipe Size	1"
Install Date	Unknown
Wall Thickness	0.133 in
Age	Unknown
Pressure	60 psig
Ground PH	6
Pipe Condition	27% Wall Loss/ Fair Condition



FY 2015

Address	249 Medford St
Town	Manchester
Pipe Size	2"
Install Date	1956/1960
Wall Thickness	0.160 in
Age	58
Pressure	60 psig
Ground PH	6
Pipe Condition	100% Wall Loss/ Very Poor Condition



FY 2015

Address	348 Lincoln St
Town	Manchester
Pipe Size	3"
Install Date	1954
Wall Thickness	0.234 in
Age	60
Pressure	60 psig
Ground PH	6
Pipe Condition	12% Wall Loss/ Fair Condition



2014 Bare Steel Replacement Reports



FY 2014

Address	1-34 Dickerman St
Town	Nashua
Pipe Size	2"
Install Date	1902/1925
Wall Thickness	0.154 in
Age	111
Pressure	12 in water column
Ground PH	7.5
Pipe Condition	90% Wall Loss/ Poor Condition



FY 2014

Address	1-44 Revere St & Fernwood St
Town	Nashua
Pipe Size	2"
Install Date	1902/1925
Wall Thickness	0.188 in
Age	111
Pressure	12 in water column
Ground PH	7
Pipe Condition	37% Wall Loss/ Moderate Condition



FY 2014

Address	17-28 Sunset Dr
Town	Belmont
Pipe Size	2"
Install Date	Unknown
Wall Thickness	0.188 in
Age	Unknown
Pressure	60 psig
Ground PH	6
Pipe Condition	100% Wall Loss/Very Poor Condition



FY 2014

Address	8-18 Maple St
Town	Nashua
Pipe Size	2"
Install Date	1957
Wall Thickness	0.154 in
Age	56
Pressure	12 in water column
Ground PH	6.5
Pipe Condition	39% Wall Loss/Moderate Condition



FY 2014

Address	3-25 Pratt St & Zellwood St
Town	Nashua
Pipe Size	2"
Install Date	1894/1914
Wall Thickness	0.188 in
Age	119
Pressure	60 psig
Ground PH	7
Pipe Condition	100% Wall Loss/ Very Poor Condition



FY 2014

Address	5-21 Ridge St
Town	Nashua
Pipe Size	2"
Install Date	Unknown
Wall Thickness	0.154 in
Age	119
Pressure	12 in water column
Ground PH	6.5
Pipe Condition	39% Wall Loss/ Moderate Condition



FY 2014

Address	1-6 Jewell Lane
Town	Nashua
Pipe Size	2"
Install Date	1947
Wall Thickness	0.154 in
Age	66
Pressure	12 in water column
Ground PH	7
Pipe Condition	32% Wall Loss/ Moderate Condition



2013 Bare Steel Replacement Reports



FY 2013

Address	5-19 Lemon St
Town	Nashua
Pipe Size	2"
Install Date	1902/1925
Wall Thickness	Unknown
Age	110
Pressure	12 in water column
Ground PH	6
Pipe Condition	100% Wall Loss/ Very Poor Condition



FY 2013

Address	2-13 Grove St
Town	Nashua
Pipe Size	2"
Install Date	1910
Wall Thickness	Unknown
Age	102
Pressure	12 in water column
Ground PH	7
Pipe Condition	Deep Pitting/ Poor Condition



2012 Bare Steel Replacement Reports



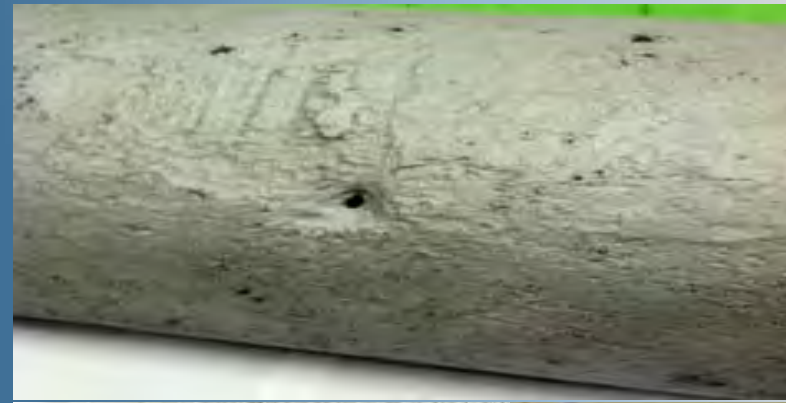
FY 2012

Address	18-56 Ash St
Town	Nashua
Pipe Size	2"
Install Date	1928
Wall Thickness	Unknown
Age	83
Pressure	12 in water column
Ground PH	6.5
Pipe Condition	100% Wall Loss/ Very Poor Condition



FY 2012

Address	55-100 W North St
Town	Manchester
Pipe Size	8"
Install Date	1960
Wall Thickness	Unknown
Age	51
Pressure	12 in water column
Ground PH	6
Pipe Condition	Deep Pitting/ Poor Condition



2011 Bare Steel Replacement Reports



FY 2011

Address	20-34 School St
Town	Hudson
Pipe Size	2"
Install Date	1947
Wall Thickness	Unknown
Age	63
Pressure	12 in water column
Ground PH	7.5
Pipe Condition	Deep Pitting/ Fair to Poor Condition



FY 2011

Address	2-18 Faxon St & 1-7 Faxon Ave
Town	Nashua
Pipe Size	2"
Install Date	1912
Wall Thickness	Unknown
Age	98
Pressure	12 in water column
Ground PH	7.5
Pipe Condition	Multiple Large Holes/ Very Poor Condition



FY 2011

Address	116-130 Bowers St
Town	Nashua
Pipe Size	2"
Install Date	1913
Wall Thickness	Unknown
Age	97
Pressure	12 in water column
Ground PH	7
Pipe Condition	Heavy Wall Loss/ Poor Condition



FY 2011

Address	1-19 Perkins St & 41-46 Bradley St
Town	Concord
Pipe Size	1.5"
Install Date	1955
Wall Thickness	Unknown
Age	55
Pressure	12 in water column
Ground PH	7
Pipe Condition	Deep Pitting/ Fair to Poor Condition



FY 2011

Address	Chester St-59 Berkeley St
Town	Nashua
Pipe Size	2"
Install Date	1947
Wall Thickness	Unknown
Age	63
Pressure	12 in water column
Ground PH	7
Pipe Condition	Visible Holes/ Very Poor Condition



2010 Bare Steel Replacement Reports



FY 2010

Address	2-7 Cornell St
Town	Concord
Pipe Size	2"
Install Date	1955
Wall Thickness	Unknown
Age	54
Pressure	60 psig
Ground PH	7 to 8
Pipe Condition	Good Condition
	Coated Steel



FY 2010

Address	83 Pleasant St
Town	Concord
Pipe Size	2"
Install Date	1900
Wall Thickness	Unknown
Age	109
Pressure	12 in water column
Ground PH	6
Pipe Condition	Some Areas of Pitting and Wall Loss



FY 2010

Address	25-28 Depot St
Town	Franklin
Pipe Size	2"
Install Date	1931
Wall Thickness	Unknown
Age	78
Pressure	60 psig
Ground PH	6
Pipe Condition	Good Condition
	Coated Steel



FY 2010

Address	80-113 Blossom St
Town	Nashua
Pipe Size	2"
Install Date	1908 & 1913
Wall Thickness	Unknown
Age	101
Pressure	12 in water column
Ground PH	5
Pipe Condition	Extremely Poor Condition



FY 2010

Address	5-11 Bristol St
Town	Nashua
Pipe Size	4"
Install Date	1947, 1951, 1954, 195?
Wall Thickness	Unknown
Age	62
Pressure	12 in water column
Ground PH	7
Pipe Condition	Moderate Uniform Pitting/ Fair Condition



FY 2010

Address	12-25 Buck St
Town	Nashua
Pipe Size	2"
Install Date	1901, 1903 & 1911
Wall Thickness	Unknown
Age	108
Pressure	12 in water column
Ground PH	6 to 7
Pipe Condition	Heavy Pitting/ Poor Condition



FY 2010

Address	2-4 Fourth St
Town	Nashua
Pipe Size	2"
Install Date	1926
Wall Thickness	Unknown
Age	83
Pressure	12 in water column
Ground PH	6
Pipe Condition	Significant Deep Pitting/ Poor Condition



FY 2010

Address	31-39 Newbury St
Town	Nashua
Pipe Size	2"
Install Date	1898, 1910, 1928
Wall Thickness	Unknown
Age	111
Pressure	12 in water column
Ground PH	3 to 4
Pipe Condition	Significant Wall Loss/ Poor Condition



FY 2010

Address	5-21 Winter St
Town	Tilton
Pipe Size	4"
Install Date	1931
Wall Thickness	Unknown
Age	78
Pressure	60 psig
Ground PH	7
Pipe Condition	Fair Condition



2009 Bare Steel Replacement Reports



FY 2009

Address	Concord St
Town	Concord
Pipe Size	2"
Install Date	1953
Wall Thickness	0.166 in
Age	55
Pressure	12 in water column
Ground PH	7 to 8
Pipe Condition	Deep pitting/Significant wall loss



FY 2009

Address	2 Woodman St
Town	Concord
Pipe Size	1.5"
Install Date	1929
Wall Thickness	0.130 in
Age	79
Pressure	12 in water column
Ground PH	7 to 8
Pipe Condition	Deep pitting/Significant wall loss



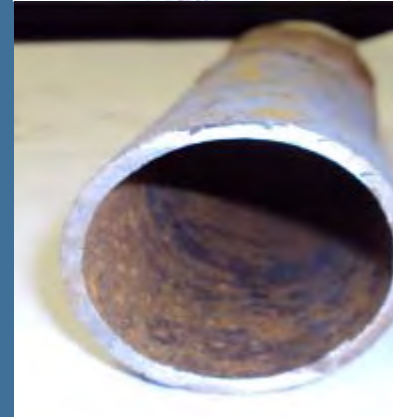
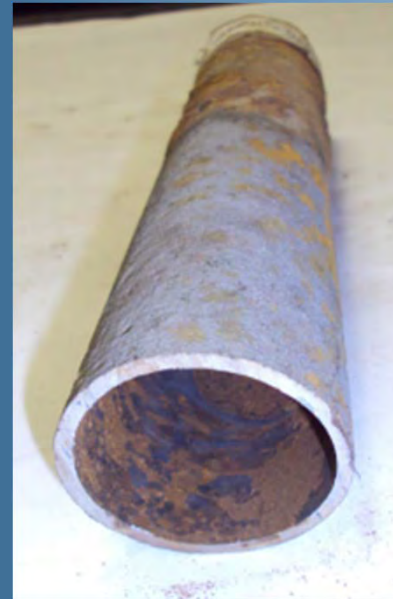
FY 2009

Address	Connell St
Town	Hudson
Pipe Size	2"
Install Date	1928
Wall Thickness	0.139 in
Age	80
Pressure	12 in water column
Ground PH	6 to 7
Pipe Condition	Deep pitting/Significant wall loss



FY 2009

Address	Gloria Avenue
Town	Hudson
Pipe Size	2"
Install Date	1954
Wall Thickness	0.148 in
Age	54
Pressure	60 psig
Ground PH	7 to 8
Pipe Condition	Fair Condition



FY 2009

Address	Library St
Town	Hudson
Pipe Size	4"
Install Date	1908
Wall Thickness	0.234 in
Age	100
Pressure	12 in water column
Ground PH	6
Pipe Condition	Fair Condition



FY 2009

Address	Mulberry St
Town	Nashua
Pipe Size	2"
Install Date	1912
Wall Thickness	0.124 in
Age	96
Pressure	12 in water column
Ground PH	7 to 8
Pipe Condition	Concentrated Deep Pitting



FY 2009

Address	Prescott St & Putnam St
Town	Nashua
Pipe Size	2"
Install Date	1924
Wall Thickness	Not Taken Due to Poor Condition
Age	84
Pressure	12 in water column
Ground PH	6 to 7
Pipe Condition	Pipe Breakage and Pit Holes



FY 2009

Address	Reed Ct
Town	Nashua
Pipe Size	2"
Install Date	1908
Wall Thickness	0.121 in
Age	100
Pressure	12 in water column
Ground PH	6
Pipe Condition	Significant Wall Loss



Liberty Utilities (EnergyNorth Natural Gas) Corp. d/b/a Liberty Utilities

DG 20-049

FY 2020 Cast Iron/Bare Steel Replacement Program Results

Staff Data Requests - Set 2

Date Request Received: 5/15/20
 Request No. Staff 2-1

Date of Response: 5/29/20
 Respondent: Brian Frost

REQUEST:

Please provide the Company's projected timeline to complete the replacement of all CIBS mains and services within the Company's service territories. Please include the following information:

- a) Existing miles of cast iron mains at the start and end of each year;
- b) Existing miles of cast iron services at the start and end of each year;
- c) Existing miles of bare steel mains at the start and end of each year;
- d) Existing miles of bare steel services at the start and end of each year;
- e) Linear footage replaced each year;
- f) Annual cost of CIBS replacement;
- g) Annual average cost per foot of CIBS replacement.

RESPONSE:

The Company does not have a projected timeline to complete replacement of all cast iron and bare steel mains. Additionally, since a CIBS-specific timeline is not available, projected data is not separated between cast iron, bare steel, gas mains, or gas services. Likewise, the Company does not have projections of future costs specifically for cast iron and bare steel replacement.

Looking at past filings, in Docket No. DG 19-054 the Company had 66.0 miles of cast iron and bare steel main remaining at the conclusion of the FY 2019 replacement program. In this docket the Company described a total planned cast iron and bare steel replacement during the year from all types of work as 12.9 miles. Based upon this year's planned construction, and simply assuming this year's rate of CIBS replacement will continue in future years, a future calendar is listed below.

Year	Total Replacement (miles)	Cast Iron and Bare Steel Remaining (miles)
End of FY 2019 Program		53.1
FY 2020-21	8	45.1
FY 2021-22	8	37.1

Docket No. DG 20-049 Request No. Staff 2-1

Year	Total Replacement (miles)	Cast Iron and Bare Steel Remaining (miles)
FY 2022–23	8	29.1
FY 2023–24	8	21.1
FY 2024–25	8	13.1
FY 2025–26	8	5.1
FY 2026–27	5.1	0

	2020	2021	
CapEx - Replenishment			
Mandated			
Cathodic Protection Program	\$ 400,000	\$ 400,000	
Cathodic Protection/Corrosion Mitigation Program	\$ 5,000	\$ 5,000	
Corrosion & Miscellaneous Fitting	\$ 150,000	\$ 150,000	
Leak Repairs	\$ 1,000,000	\$ 1,200,000	
Meter Protection Program	\$ 300,000	\$ 300,000	
Meter Work Project (Meter Purchases)	\$ 1,000,000	\$ 1,420,545	
Replacement Services Random	\$ 10,000	\$ 10,000	
Replacement Services Random (Due to Leaks)	\$ 550,000	\$ 350,000	
Replacement Services Random (Non Leaks)	\$ 350,000	\$ 150,000	
Reserve for Unidentified Mandated Projects	\$ 200,000	\$ 200,000	
Valve Installation/Replacement	\$ 90,000	\$ 90,000	
Regulatory			
Main Replacement LPP	\$ 9,042,804	\$ 9,495,000	CIBS Program
Main Replacement LPP-Restoration	\$ 4,114,376	\$ 4,000,000	
Discretionary			
Aldyl-A Replacement Program	\$ -	\$ 450,000	
Capital Tools/Equipment	\$ 35,000	\$ 25,000	
Dispatch and Control Center	\$ 10,000	\$ 10,000	
K Meter Replacement Program	\$ 430,000	\$ 430,000	
Main Replacement Fitting LPP	\$ 740,501	\$ 1,000,000	
Main Replacement Reactive	\$ 500,000	\$ 500,000	
Nashua Paving	\$ 800,000	\$ -	
Regulator removal Hi line LOU	\$ 50,000	\$ 175,000	
Reserve for Unidentified Projects	\$ 25,000	\$ 25,000	
RTU Replacement Program	\$ 60,000	\$ 60,000	
SCADA Capital Improvements	\$ 80,000	\$ 80,000	
Transportation Fleet and Equipment Purchases	\$ 198,000	\$ -	
Upgrade Synergi Software	\$ 60,000	\$ 65,000	
Safety			
2' Jamesbury replacement program	\$ 60,000	\$ 60,000	
CapEx - Improvement			
Mandated			
Dresser Coupling Replacement Program	\$ 500,000	\$ 550,000	
Inactive Service Program	\$ 75,000	\$ 75,000	
Install Security Equipment - EN Facilities	\$ 50,000	\$ 100,000	
LNG/LPG Capital Improvements	\$ 100,000	\$ 100,000	
Main Replacement City/State Construction	\$ 5,118,485	\$ 5,200,000	
Pre-Code Stee Pipe Protection Program/Replacement	\$ 268,778	\$ 300,000	
Service Replacement City/State Construction	\$ 25,000	\$ 25,000	
Service Replacement Fitting City/State Construction	\$ 303,000	\$ 270,000	
Safety			
Discretionary			
Fortis Software	\$ 98,659	\$ -	
EN Facilities Capital Improvements	\$ 600,000	\$ 600,000	
Facility Improvements & Additions - Keene	\$ 25,000	\$ 5,000	
Finance Unalloc Burden	\$ 703,143	\$ 700,000	
Flir Cameras - Security -Manchester	\$ 986,000	\$ -	
Flir Cameras - Security-Keene	\$ 364,000	\$ -	
Gas System Control & Regulation (ENG)	\$ 350,000	\$ 325,000	
Gas System Planning & Reliability	\$ 2,900,000	\$ 2,900,000	
GPS Mapping Equipment	\$ 15,000	\$ -	
iRestore System Enhancements	\$ 200,000	\$ -	
IT - Software, Equipment & Infrastructure	\$ 75,000	\$ 75,000	
IT Systems Allocations - Corporate	\$ 55,000	\$ 500,000	
Material Bar Coding	\$ 187,500	\$ -	
NH GIS & OMS Database Split & Tuning	\$ 95,000	\$ -	
Purchase Misc Capital Equipment & Tools	\$ 280,000	\$ 295,000	
SAP-Ariba EN Portion Procure to Pay Software	\$ 350,798	\$ -	
SCADA Data center upgrades	\$ 50,000	\$ -	
Service Mapping Project	\$ 100,000	\$ -	
Transportation Fleet and Equipment Purchases	\$ 2,663,000	\$ 2,600,000	
CapEx - Growth			
Growth			
CNG/LNG Costs (placeholder)	\$ 627,628	\$ -	
Granite Bridge Alternative 2020	\$ 50,000	\$ -	
Growth Fitting	\$ 1,504,528	\$ 1,500,000	
Growth New Main	\$ 4,774,420	\$ 4,799,455	
Main Replacement/Growth Fitting	\$ 5,000	\$ 5,000	
Marketing & Sales	\$ -	\$ 100,000	
New Reinforcement Main for Growth ENG	\$ 368,180	\$ 1,000,000	
New Service Comm/Industrial	\$ 1,097,723	\$ 1,030,000	
New Service Residential	\$ 3,156,007	\$ 4,025,000	
Reserve for Unidentified Growth ENG	\$ 1,577,469	\$ 1,600,000	
Windham-Pelham Managed Expansion Project	\$ 450,000	\$ -	
	\$ 50,410,000	\$ 49,330,000	



Steven E. Mullen
Director, Rates & Regulatory Affairs
O: 603-216-3516
E: Steven.Mullen@libertyutilities.com

May 13, 2020

Via ERF and US Mail

Debra A. Howland
Executive Director
New Hampshire Public Utilities Commission
21 S. Fruit Street, Suite 10
Concord, NH 03301-2429

**Re: Liberty Utilities (EnergyNorth Natural Gas) Corp. and Liberty Utilities (EnergyNorth Natural Gas) Corp – Keene Division both d/b/a Liberty Utilities
E-22 Proposed Expenditures for Additions, Extensions and Capital Improvements to Fixed Capital – 2020 Construction Season**

Dear Ms. Howland:

Pursuant to Puc 509.11, enclosed for filing please find Liberty Utilities' E-22 Report of Proposed Expenditures for Additions, Extensions and Capital Improvements to Fixed Capital. Please note this report has been filed via the Commission's Electronic Report Filing System.

Thank you for your attention to this matter. Please do not hesitate to call if you have any questions.

Sincerely,

A handwritten signature in black ink that reads "Steven E. Mullen".

Steven E. Mullen

Enclosure

2149/2150

NEW HAMPSHIRE PUBLIC UTILITIES COMMISSION
YEARLY REPORT OF PROPOSED EXPENDITURES FOR ADDITIONS, EXTENSIONS AND CAPITAL IMPROVEMENTS TO FIXED CAPITAL
(In Compliance with Puc 509.11)

No.	LOCATION		PIPE SPECIFICATIONS			ESTIMATED COST	DESCRIPTION	
	TOWN	STREET	SIZE	MATERIAL	LENGTH			
1	Various	Service Replacement Fitting City/State Construction				\$ 303,000	Blanket project under EnergyNorth for main replacment for city/state construction	8840-1925
2	Various	Main Replacement City/State Construction				\$ 4,654,819	Blanket project under EnergyNorth for fitting replacement for city/state construction	8840-1923
3	Keene	Main Replacement City/State Construction				\$ 463,666	Blanket project under Keene for fitting replacement for city/state construction	8843-1908
4	Keene	Service Replacement City/State Construction				\$ 25,000	Blanket project under Keene for fitting replacement for city/state construction	8843-1909
TOTAL						\$ 5,446,485		

Supervisor's Name / Title: Richard MacDonald / Vice President Operations
 (please print)

Supervisor's Signature: Rich MacDonald Digitally signed by Rich MacDonald
 Date: 2020.05.12 10:03:54 -04'00'

Date Submitted: May 12, 2020

** on or before May 15th of each year

NEW HAMPSHIRE PUBLIC UTILITIES COMMISSION
YEARLY REPORT OF PROPOSED EXPENDITURES FOR ADDITIONS, EXTENSIONS AND CAPITAL IMPROVEMENTS TO FIXED CAPITAL
(In Compliance with Puc 509.11)

No.	LOCATION		PIPE SPECIFICATIONS			ESTIMATED COST	DESCRIPTION
	TOWN	STREET	SIZE	MATERIAL	LENGTH		
1	Various	New Reinforcement Main for Growth				\$ 368,180	Blanket project under EnergyNorth created as a placeholder for anticipated growth for year-ahead activity. 8840-1948
	Various	Growth New Main				\$ 4,674,420	Blanket project under EnergyNorth for new main growth based on historical spending trends and anticipated year-ahead activity. 8840-1947
2	Various	Growth Fitting				\$ 1,504,528	Blanket project under EnergyNorth for growth fitting (meters & services) based on historical spending trends and anticipated year-ahead activity. 8840-1949
3	Various	New Service Comm/Industrial				\$ 1,067,723	Blanket project under EnergyNorth for new commercial/industrial service based on historical spending trends and anticipated a year-ahead activity. 8840-1951
4	Various	New Service Residential				\$ 3,131,007	Blanket project under EnergyNorth for new residential service based on historical spending trends and anticipated a year-ahead activity. 8840-1950
	Pelham	Windham-Pelham Managed Expansion Project				\$ 450,000	Blanket project for subsequent restoration/completion required by the Town of Pelham. 8840-1961
	Keene	Growth New Main				\$ 100,000	Blanket project under Keene for new main growth based on historical spending trends and anticipated year-ahead activity. 8843-1915
5	Keene	Main Replacement/Growth Fitting				\$ 5,000	Blanket project under Keene for growth fitting (meters & services) based on historical spending trends and anticipated year-ahead activity. 8843-1916
	Keene	New Service Residential				\$ 25,000	Blanket project under Keene for new residential service based on historical spending trends and anticipated a year-ahead activity. 8843-1917
	Keene	New Service Comm/Industrial				\$ 30,000	Blanket project under Keene for new commercial/industrial service based on historical spending trends and anticipated a year-ahead activity. 8843-1918
TOTAL						\$ 11,355,858	

Supervisor's Name / Title: Richard MacDonald / Vice President Operations

(please print)

Supervisor's Signature: _____

Rich MacDonald

Digitally signed by Rich MacDonald
 Date: 2020.05.12 10:05:10 -04'00'

Date Submitted: _____

NEW HAMPSHIRE PUBLIC UTILITIES COMMISSION
YEARLY REPORT OF PROPOSED EXPENDITURES FOR ADDITIONS, EXTENSIONS AND CAPITAL IMPROVEMENTS TO FIXED CAPITAL
(In Compliance with Puc 509.11)

No.	LOCATION		PIPE SPECIFICATIONS			ESTIMATED COST	DESCRIPTION
	TOWN	STREET	SIZE	MATERIAL	LENGTH		
1	Various	Reserve for Unidentified Mandated Projects				\$ 200,000	
2	Various	Upgrade Synergi Software				\$ 60,000	
3	Various	Inactive Service Program				\$ 75,000	
4	Various	GPS Mapping Equipment				\$ 15,000	
5	Various	Service Mapping Project				\$ 100,000	
6	Various	Meter Protection Program				\$ 300,000	
7	Various	Cathodic Protection Program				\$ 400,000	
8	Various	Replacement Services Random (Non Leaks)				\$ 350,000	
9	Various	Corrosion & Miscellaneous Fitting				\$ 150,000	
10	Various	Valve Installation/Replacement				\$ 85,000	
11	Various	K Meter Replacement Program				\$ 430,000	
12	Various	Dispatch and Control Center				\$ 10,000	
13	Various	Purchase Misc Capital Equipment & Tools				\$ 280,000	
14	Various	Regulator removal Hi line LOU				\$ 50,000	
15	Various	SCADA Capital Improvements				\$ 80,000	
16	Nashua	Nashua Paving				\$ 800,000	
17	Various	LNG/LPG Capital Improvements				\$ 100,000	
18	Various	Reserve for Unidentified Growth ENG				\$ 1,577,469	
19	Various	Gas System Control & Regulation (ENG)				\$ 350,000	
20	Various	Pre-Code Stee Pipe Protection Program/Replacement				\$ 268,778	
21	Various	IT - Software, Equipment & Infrastructure				\$ 50,000	
22	Various	Gas System Planning & Reliability				\$ 2,900,000	
23	Various	SCADA Data center upgrades				\$ 50,000	
24	Various	IT Systems Allocations - Corporate				\$ 55,000	
25	Various	Dresser Coupling Replacement Program				\$ 500,000	
26	Various	iRestore System Enhancements				\$ 200,000	
27	Various	Flir Cameras - Security -Manchester				\$ 986,000	
28	Various	NH GIS & OMS Database Split & Tuning				\$ 95,000	
29	Various	RTU Replacement Program				\$ 60,000	
30	Various	2' Jamesbury replacement program				\$ 60,000	
31	Various	SAP-Ariba EN Portion Procure to Pay Software				\$ 350,798	
32	Various	Fortis Software				\$ 98,659	
33	Various	Material Bar Coding				\$ 187,500	
34	Various	Transportation Fleet and Equipment Purchases				\$ 2,663,000	
35	Various	Meter Work Project (Meter Purchases)				\$ 1,000,000	
36	Various	EN Facilities Capital Improvements				\$ 600,000	
37	Various	Install Security Equipment - EN Facilities				\$ 50,000	
38	Various	Granite Bridge Alternative 2020				\$ 50,000	
39	Various	Finance Unalloc Burden				\$ 703,143	
40	Keene	Capital Tools/Equipment				\$ 35,000	
41	Keene	Cathodic Protection/Corrosion Mitigation Program				\$ 5,000	
42	Keene	CNG/LNG Costs (placeholder)				\$ 627,628	
43	Keene	Facility Improvements & Additions - Keene				\$ 25,000	
44	Keene	Flir Cameras - Security-Keene				\$ 364,000	
45	Keene	IT - Software, Equipment & Infrastructure				\$ 25,000	
46	Keene	Keene HP Conversion to CNG				\$ -	
47	Keene	Replacement Services Random				\$ 10,000	
48	Keene	Reserve for Unidentified Projects				\$ 25,000	
49	Keene	Transportation Fleet and Equipment Purchases				\$ 198,000	
50	Keene	Valve Installation/Replacement				\$ 5,000	
TOTAL						\$ 17,659,975	

Supervisor's Name / Title: Richard MacDonald / Vice President Operations
 (please print)

Supervisor's Signature: Rich MacDonald Digitally signed by Rich MacDonald
 Date: 2020.05.12 10:05:38 -04'00'

Date Submitted: _____



LIBERTY UTILITIES DAILY CONSTRUCTION SCHEDULE
 Wednesday, June 10, 2020

SOC CONTACT INFORMATION		COUNT PER INSPECTOR	DIVISION	
PAUL ROGOSIENSKI - GAS OPERATIONS MANAGER	(603) 327-6140	0	SOUTH	6
ANTHONY BELAND - SUPERVISOR SOUTH	(603) 589-3920	0	CENTRAL	5
BURROWS - S	(407) 879-5430	2	NORTH	2
BROWNELL - S	(603) 765-1772	0		
GALLANT - S	(774) 452-5528	3		
STEVE ROKES - MANAGER KEENE	(603) 209-2582	0		
MCCORD - S	(413) 475-0008	1		
IAN CRABTREE - SUPERVISOR CENTRAL	(978) 758-3504	0		
SMART - C	(603) 765-1782	0		
RICARDO - C	(603) 777-7721	3		
ROUSSEAU - C	(603) 661-5675	2		
HEATH LYNCH - SUPERVISOR NORTH	(603) 327-4092	0		
PAYNE - N	(603) 231-6323	1		
BARNES - N	(203) 627-9608	0		
TINKER - N	(603) 630-3216	1		
TOTAL CREWS ASSIGNED AN INSPECTOR		13		

CONTRACTOR	CREW COUNT
MEARS	2
MIDWAY	3
RHW	4
FEENEY	4
TOTAL CREWS	13

DIVISION	LU SPAN OF CONTROL	CREW LEADER	CELL	ADDRESS	TOWN	JOB/ PERMIT #	MAIN	SERVICE	OTHER	CRITICAL TASK	CONTR. SUPER	CELL	CONTRACTOR
CENTRAL	RICARDO	Bruce Terrio	603-759-9587	253-309 Lake Av	MNC	402023-37603/115269			X		Tom Cowgill	857-309-6657	FEENEY
CENTRAL	RICARDO	Dionne, Al	(978) 360-1973	1568 Hooksett Rd	HOK	402051-38001018			X		Bennett, Dan	(508) 889-0720	MIDWAY
CENTRAL	RICARDO	Justin Pearce	603-234-7331	Dubuque St	MNC	402011-37615	X				Mark Nelson	603-309-0890	RHW
CENTRAL	ROUSSEAU	Joel Decato	603-396-3065	Mammoth Rd	MNC	402023.3763	X				Mark Nelson	603-309-0890	RHW
CENTRAL	ROUSSEAU	Darrin Lahaye Jr	978-478-8236	166 Riverbank Rd	MNC	402050-38001056/116410		X			Tom Cowgill	857-309-8657	FEENEY
NORTH	PAYNE	Terrio, Dale	(978) 360-2388	S. State St	CCD	402011-37603	X		X		Bennett, Dan	(508) 889-0720	MIDWAY
NORTH	TINKER	Masse, Jason	(603) 913-6430	56 Dow Rd	BOW	402051-38001024			X		Bennett, Dan	(508) 889-0720	MIDWAY
SOUTH	BURROWS	McKenney, William	603-770-6076	Harvest Moon	LOH	401747-37642	X				Ricardo, Dave	603-440-4138	MEARS
SOUTH	BURROWS	Xavien Lagoa	978-320-7271	11 Bridle Path	LOH	401947-37686/n/a	X			TIE-IN	Beavan McNamara	857-309-6785	FEENEY
SOUTH	GALLANT	Enright, Dan	603-396-6587	Farley St Permit 19-490	NAS	402011-37626	X				Ricardo, Dave	603-440-4138	MEARS
SOUTH	GALLANT	Joe Sarette	603-210-3014	49 Hunt St	NAS	401950-38001302			X		Gene Allen	603-396-2872	RHW
SOUTH	GALLANT	Joe Paddock	978-968-4185	89 West Hollis St	NAS	402050-38001057/20-255			X		Beavan McNamara	857-309-6785	FEENEY
SOUTH	MCCORD	Shawn James	603-234-0654	Roxbury St Bridge	KNE	431908-37601	X			CUT & CAP	Gene Allen	603-396-2871	RHW

STATE OF NEW HAMPSHIRE
Inter-Department Communication

DATE: June 16, 2020
AT (OFFICE): NHPUC

FROM: Anthony Leone, Utility Analyst

SUBJECT: Liberty Utilities (EnergyNorth Natural Gas) Corp.
FY 2020 CIBS Replacement Program- DG 20-049
Fiscal Year 2020- April 1, 2019 – March 31, 2020
FINAL Audit Report

TO: Steve Frink, Director, Gas/Water Division NHPUC
Randy Knepper, Director, Safety Division NHPUC
Jayson Laflamme, Assistant Director, Gas/Water Division NHPUC
Iqbal Al-Azad, Utilities Analyst IV Gas/Water Division NHPUC

Introduction

Liberty Utilities (EnergyNorth Natural Gas) Corp. (Liberty or Company) filed its Fiscal Year (FY) 2020 Cast Iron/Bare Steel (CIBS) program results (April 1, 2019 through March 31, 2020) with the Commission on April 15, 2020 filed as Docket No. DG 20-049. These results and the subsequent request for recovery are filed pursuant to the settlement agreement in Order No. 25,370 (May 30, 2012) in Docket No. DG 11-040.

The costs associated with the FY 2020 CIBS program were reviewed and below is a summary of those costs from the RAM/BRF-1 & 2 Attachments. Specifically, the Company is requesting a \$1,612,633 increase in the annual revenue requirement based upon \$14,885,260 of eligible costs which included FY 2019 carryover costs at the maximum 5% of estimated FY 2020 costs.

FY 2020 Costs (Col. BE, line 51)	\$ 14,503,496
FY 2019 Carryover Costs @ 5% (RAM/BRF-1)	\$ <u>930,987</u>
FY 2020 Sub-total Recoverable Costs	\$ 15,434,483
FY 2020 Adjusted CIBS Base Investment	\$ <u>(549,222)</u>
Total Recoverable Costs for FY 2020	\$ 14,885,260

Estimated Costs vs. Actual Costs

The FY 2020 estimated and actual loaded costs are compared in Column “BM” in Attachment A of Attachment RAM/BRF-2. An excel version of this schedule was provided for this audit to which the cost variance formula found was reviewed for accuracy and completeness. As indicated one Bates page 8 of the testimony of Mostone & Frost, the FY 2020 CIBS program anticipated 39 projects resulting in approximately 12.68 miles of cast iron/ bare steel main replaced or abandoned. The testimony further indicated the final amount was 29 projects completed in their entirety, 7 projects started but had reduced scopes, and 3 projects were deferred entirely. This resulted in 11.13 miles of cast iron/ bare steel main replaced or abandoned.

As indicated in Attachment A of Attachment RAM/BRF-2, the cost variance for the FY 2020 CIBS Program includes the original estimated cost for all projects, even those with reduced scopes. Therefore, the cost variances for the projects, which impact the overall program cost variance may not be accurately represented. In the absence of an approved method to reflect the cost variance of projects with reduced scopes and their impact to the overall cost variance, the analyst has prepared a chart comparing the cost variances per Division as found in Attachment A of Attachment RAM/BRF-2 and a recalculation removing, in their entirety, those projects that had reduced scopes. It is important to note that if and when these projects are completed, the overall cost may be under, at, or over budget.

	<u>Northern</u>	<u>Central</u>	<u>Southern</u>	<u>Overall</u>
Filed	+38%	+15%	+5%	+15%
Recalculated	+39%	+36%	+16%	+28%

Recoverable Costs - Work Order Review

Liberty provided the FY 2020 CIBS Program data, including estimated and actual costs, covering all 39 approved projects. The data was sent as Microsoft Excel spreadsheet (sheets) versions of Attachment RAM/BRF-2 and DBS/CAM-1 and CAM-2. The sheets provided work order numbers, locations, direct main and service costs as well as indirect/ loaded cost totals.¹ The loaded costs as identified on the sheets were comprised of items including benefits, overhead, and other indirect costs. The sheets also provided a short note describing any variance between the estimated and the final costs.

In addition, Liberty provided supporting data for each of the 6 projects chosen to review in depth for this report. Supporting data included detailed cost sheets for each project, the general ledger accounts where the costs were booked, what the cost was for, and when it was incurred. All of the initial supporting data reviewed indicated the costs were properly booked to at least Account #107-Construction Work In Progress (“CWIP”) and as explained later, a sample was verified to be booked to Account #106- Completed Construction but Not Classified as of March 31, 2020, as required by the CIBS program rules. The posting of completed CIBS jobs to

¹ The term “Loaded Cost” refers to the sum of the direct charges (outside contractors, materials, police, flaggers, etc.) and indirect charges (benefits, overheads, back office, burdens, etc.).

Account #106 was reviewed in the prior audit and again verified in the current audit with no exceptions found.

The sheets provided for this review separated the costs of each work order by cost element which could then be grouped as main costs, service costs, direct costs or indirect costs. These totals were then traced to amounts in the RAM/BRF-2 schedule which tie out to the filing. The Analyst found no issues with verifying the data from the sheets to the schedule to the filing.

The CIBS program allows for the recovery of costs as long as the following requirements are met: The unprotected bare steel main replacement as determined by evaluation and selection process; cast iron main replacement as determined by evaluation and selection process; cast iron or bare steel main replacement requested by field operation personnel; and finally, bare steel services replaced as a result of a segment of bare steel main or cast iron main that is selected.

The following are not allowable recovery costs under the CIBS program: The costs of moving inside meters to the outside, costs of reconnecting existing plastic services or existing coated steel services from cast iron mains or bare steel mains to newly installed replacement main, costs of main replaced made of polyethylene or steel that have protective coating, mains that are abandoned, incremental costs of upsizing with exceptions unless approved by the Safety Division, costs of coated steel that act as bare steel mains such as poorly coated steel mains or disbanded steel mains unless approved by Safety Division, and carryover costs in aggregate exceeding 5% of the approved estimated total expenditures under the CIBS program for the construction year unless approved by the Safety Division. The carryover costs include items such as restoration costs not included during the construction year.

Degradation Fees

In June 2017, the New Hampshire State Supreme Court ruled that Manchester and other municipalities can charge fees to companies who dig up city streets to reach buried utility lines. According to Column AS of the RAM/BRF-2 file provided for this audit, the total degradation fees charged to Liberty in FY 2020 as a result of the CIBS Projects were:

Northern Division (Concord & Laconia areas)	\$158,097
Central Division (Manchester & Goffstown areas)	\$ 28,655
Southern Division (Nashua, Keene & Hudson areas)	<u>\$ 0</u>
	\$186,752

In the prior audit, it was explained that the City of Manchester did not bill the Company for the full amount of degradation fees that were calculated as being due. Accordingly, Liberty did not include those estimated degradation fees in the requested recovery amount. Those fees would therefore be eligible as “carry-over” costs which for which recovery in FY 2020 is limited to 5% unless specific approval is requested and received. According to the Notes column of Attachment A of RAM/BRF-2 there were a number of restoration costs for which the Company had yet to be billed by the City of Manchester.

For FY 2020, Liberty again excluded the estimated degradation fees of \$876,840 (col. W) from the requested recovery amount, including only the actual, billed amount of \$28,655. The remaining estimated amount of unbilled degradation fees from the City of Manchester would therefore be \$848,185.

Also explained in the prior audit report, the Company provided the FY 2019 Degradation Fee rates and calculation methods for Concord and Manchester. The Company explained that Concord bills on the size of the trench, typically 2 or 3 feet wide. Whereas Manchester also includes a 2 foot area on either side of the trench where applicable. Therefore, each linear foot of replaced main or service that costs approximately \$15 in Concord, could cost up to approximately \$35 in Manchester. The City of Nashua does not currently charge degradation fees.

Northern Division 8 Planned / 6 Completed / 1 with Reduced Scope / 1 Project Deferred

As detailed in the RAM/BRF-2 file provided for this review, the actual loaded cost for the Northern Division projects was \$3,543,939 (Col AY). This figure represents recoverable main and service charges of \$2,851,680 (col. BE), non-recoverable costs of \$692,259 (cols. BA+BB). This figure does NOT include the estimated, loaded, carryover costs of \$562,769 (col. BG) as those costs are neither in the recovery amount requested by the Company nor have they been incurred. The RAM/BRF-2 file provided for the review includes notes explaining the variances and lists such causes as: daily permit time restrictions, removal of steam pipes, ledge, extra depth, and installation greater than estimated.

W/O #401711-37605, 8-42 Center Street, Concord \$616,882

(Col. AT)	(Col. AU)	(Col. AY-AV)	(Col. BA+BB)	(Col. BE)	(Col. BG)
Direct	Direct	Indirect	Non-	Total	Estimated
<u>Main</u>	<u>Service</u>	<u>Costs</u>	<u>Recoverable</u>	<u>Recoverable</u>	<u>Carryover</u>
\$495,722	\$78,702	\$132,695	(\$90,237)	\$616,882	\$119,359

The Company provided a detailed work order report as well as other details from the fixed asset system, Wennsoft. The system breaks out projects by Division (Northern for the Concord area, Central for the Manchester area, and Southern for the Nashua area) then by “Parent” work order. Each parent work order can have multiple “Child” work orders that are associated with that specific job. Each child work order uses the parents’ work order # and affixes a number on the end usually starting with “001”. Each child work order usually represents the work done on service line replacements. An example of a parent and associated child work orders have been included below for reference:

- Center Street Main Replacement Work Order # 401711-37605
- Center Street Services Replacement #1 Work Order # 401711-37605-001
- Center Street Services Replacement #2 Work Order # 401711-37605-002

The Company also presented a Capital Expenditure report listing the direct main and direct service charges as well as any charges that were determined to be non-recoverable as agreed upon in the CIBS Program Guidelines. These reports were in the form of Excel

spreadsheets. The spreadsheets and the costs listed were reconciled to the RAM/BRF-2 Attachment of the Filing total of \$14,503,496 (col. BE, Line 51).

This particular work order contained non-recoverable charges. Specifically, the Company indicated 110 feet of new main pipe was non-recoverable. To determine the cost that is non-recoverable the Company divided the actual main cost with degradation fees by the actual footage of main installed, or \$633,823 / 2,448 feet. The result, \$258.91 per foot, is then multiplied by the 110 feet of new main to arrive at the non-recoverable total of \$28,481 (Col. AH, Line 3).

Lastly, the Analyst reviewed multiple invoices for this work order. These included for the contractor, Midway Utility Contractors, inspection fees from the City of Concord, easement charges, flaggers, police details and county registry. The analyst noted no exceptions while reviewing the invoices.

W/O #401911-37609, 206-320 Messer St, Laconia \$17,943

(Col. AT)	(Col. AU)	(Col. AY-AV)	(Col. BA+BB)	(Col.BE)	(Col.BG)
Direct	Direct	Indirect	Non-	Total	Estimated
<u>Main</u>	<u>Service</u>	<u>Costs</u>	<u>Recoverable</u>	<u>Recoverable</u>	<u>Carryover</u>
\$0	\$37,025	\$8,944	(\$28,027)	\$17,943	\$0

The Company provided a detailed Work Order report as well as other details from the fixed asset system, Wennsoft. The Company also provided a breakdown of the Capital Expenditures listing the direct main and direct service charges as well as any charges that were determined to be non-recoverable as agreed upon in the CIBS Program Guidelines as described in the first work order reviewed. These reports were in the form of Excel files. The Analyst reviewed the files and the costs and reconciled them to RAM/BRF-2 total of \$14,503,496 (col. BE, Line 51).

The RAM/BRF-2 sheet detailed that this specific work order eliminated the last of the CIBS mains in Laconia. Further, that total was 1,360 feet of CIBS that was abandoned. The Company also indicated the 7 services were tied over. The Company further indicated that of a portion of the 7 services were not recoverable through the CIBS program due to being new, existing plastic or coated steel. Direct and Indirect Costs, including non-recoverable costs and the new services, as found in the General Ledger, consisted of the following:

<u>Direct Main and Service Costs</u>		<u>Indirect Main and Service Costs</u>	
Labor	\$ 0	Burdens	\$ 13,104
Materials	\$ 0	Cost of Removal	\$ (4,160)
Vouchers	<u>\$37,025</u>	AFUDC	<u>\$ 0</u>
	\$37,025		\$ 8,944

Lastly, the Analyst reviewed multiple invoices for this work order. These included for the contractor, Midway Utility Contractors, restotation fees from the City of Laconia, a crossing fee to the NHDOT, and fees from JDH Inspection Services. The analyst noted no exceptions while reviewing the invoices.

Central Division 16 Projects Approved / 12 Projects Completed / 4 with Scope Reduced

As detailed in the RAM/BRF-2 file provided for this review, the actual loaded cost for the Central Division projects was \$7,537,275 (Col AY). This figure represents recoverable main and service charges of \$6,208,963 (col. BE), non-recoverable costs of \$1,328,312 (cols. BA+BB). This figure does NOT include the estimated, loaded, carryover costs of \$1,733,955 (col. BG) as those costs are neither in the recovery amount requested by the Company nor have they been incurred. The RAM/BRF-2 file provided for the review includes notes explaining the variances and lists such causes as: daily permit time restrictions, removal of steam pipes, ledge, extra depth, and installation greater than estimated.

W/O #401911-37613, 123-396 Smyth Rd. Manchester \$104,544

(Col. AT) Direct <u>Main</u>	(Col. AU) Direct <u>Service</u>	(Col. AY-AV) Indirect <u>Costs</u>	(Col. BA+BB) Non- <u>Recoverable</u>	(Col.BE) Total <u>Recoverable</u>	(Col.BG) Estimated <u>Carryover</u>
\$106,387	\$60,788	(\$36,455)	(\$26,186)	\$104,544	\$-0-

The Company provided a detailed Work Order report as well as other details from the fixed asset system, Wennsoft. The Company also provided a breakdown of the Capital Expenditures listing the direct main and direct service charges as well as any charges that were determined to be non-recoverable as agreed upon in the CIBS Program Guidelines as described earlier. These reports were in the form of Excel spreadsheets. The Analyst reviewed the spreadsheets and the costs listed and reconciled them to the \$14,503,496 (col. BE, Line 51).

The non-recoverable total of (\$26,186) was comprised of (\$9,077) in coated steel and plastic relay and the laying of main beyond what is being replaced, which is not allowed to be recovered within the CIBS and (\$17,110) of non-recoverable services costs as they met the program guidelines for being non-recoverable. The method to calculate the cost of the new main was the same as reviewed in before, the total cost for the mains is divided by the total feet installed then multiplied by the additional feet.

$$\begin{aligned} & \$71,932 \text{ (Col. AW) divided by } 317 \text{ feet (Col. AG) = } \$226.91 \text{ per foot} \\ & \$226.961 \text{ multiplied by } 40 \text{ feet = } \$9,077 \text{ of new main not-recoverable through CIBS} \end{aligned}$$

Regarding the net negative indirect costs of (\$36,455), the Company explained that this job appears to have incurred net negative burden/ Overhead (OH) charges simply due timing. More specifically, to the timing of reversing the accrued (estimated) invoices that had been posted to the job, the posting of the actual invoices and the charging of burden/ OH to the job which are calculated using the actual invoices and only posted the following month.

Specifically, the Company explained that as a policy, burden/ OH charges are calculated and charged in the month following the month of the charges for which the calculation is based upon. For example, April burden/ OH charges for Job #123 are calculated from contractor invoices received and posted to Job #123 in March. In this specific instance, the Company was unable to secure and post the actual invoices from the contractor/ vendor until March of 2020, and therefore the actual burdens/ OH were not calculated and charged until April 2020. April

2020, is after the March 31 cut-off date for inclusion in the current CIBS Fiscal Year and therefore the Company did not include the approximately \$26,000 that the job actually incurred. The posting of accrued (estimated) entries to a job is a common accounting procedure for properly capturing and recording costs in the correct time period which have been incurred but not yet billed for, and for Liberty, is also used to allocate burden/OH charges throughout the life of the projects that take months to complete. The Analyst has no issues with the posting of accrued entries to record estimated costs as it is a common accounting procedure.

The Direct and Indirect Costs, including non-recoverable costs and the new services, as found in the GL as of March 31, 2020, consisted of the following:

<u>Direct Main and Service Costs</u>		<u>Indirect Main and Service Costs</u>	
Labor	\$ 1,383		
Materials	\$ 2,337	Burdens	\$ (26,076)
Vouchers	\$134,574	Cost of Removal	\$ (11,387)
Accrued V.	\$ 28,882	AFUDC	\$ 1,018
	\$167,175		\$ (36,445)

Lastly, the Analyst reviewed multiple invoices for this work order. These included for the contractor, Midway Utility Contractors, inspection fees from the City of Manchester, police detail charges, and fees from JDH Inspection Services. The analyst noted no exceptions while reviewing the invoices.

W/O #401911-37624, 555-609 South Beech St. Manchester \$94,548

(Col. AT)	(Col. AU)	(Col. AY-AV)	(Col. BA+BB)	(Col.BE)	(Col.BG)
Direct	Direct	Indirect	Non-	Total	Estimated
<u>Main</u>	<u>Service</u>	<u>Costs</u>	<u>Recoverable</u>	<u>Recoverable</u>	<u>Carryover</u>
\$103,078	\$23,368	(\$18,528)	(\$13,370)	\$94,548	\$61,098

The Company provided a detailed Work Order report as well as other details from the fixed asset system, Wennsoft. The Company also provided a breakdown of the Capital Expenditures listing the direct main and direct service charges as well as any charges that were determined to be non-recoverable as agreed upon in the CIBS Program Guidelines as described in the first work order reviewed. These reports were in the form of Excel spreadsheets. The Analyst reviewed the spreadsheets and the costs listed and reconciled them to the \$14,503,496 (col. BE, Line 51).

The non-recoverable main total of \$325 is comprised of 30 feet of main that was upsized. This differential is important due to the program guidelines not allowing for recovery through the CIBS of upgrading a 4-inch pipe a 6-inch pipe unless specifically designated by the Safety Director of the PUC. For FY 2020, this cost was calculated at \$10.84 per foot. The Company indicated the method of determining the cost of upsized pipe as: Each year for the CIBS program Liberty Utilities calculates the average project installed footage length for completed projects in the CIBS program. In FY 2020, Liberty indicated this was 1,548 feet. The company then places this average installed project length in the company’s estimating tool to compare the cost difference of installing 4 inch and 6 inch pipe sizes. Paving and gas service costs are identical

regardless of pipe size therefore those factors are not included in the cost difference calculation. Specifically, based upon the above method, Liberty indicated that the average cost per foot is \$63.73 and \$74.57 for 4 inch and 6 inch pipes respectively.

Lastly, the Analyst reviewed multiple invoices for this work order. These included for the contractor, Midway Utility Contractors, inspection fees from the City of Manchester, police detail charges, and fees from JDH Inspection Services. The analyst noted no exceptions while reviewing the invoices.

Southern Division 15 Projects Approved / 11 Projects Completed / 2 with Scope Reduced / 2 Projects Deferred

As detailed in the RAM/BRF-2 file provided for this review, the actual loaded cost for the Southern Division projects was \$6,954,314 (Col AY). This figure represents recoverable main and service charges of \$5,442,853 (col. BE), non-recoverable costs of \$1,328,312 (cols. BA+BB). This figure does NOT include the estimated, loaded, carryover costs of \$1,511,461 (col. BG) as those costs are neither in the recovery amount requested by the Company nor have they been incurred. The RAM/BRF-2 file provided for the review includes notes explaining the variances and lists such causes as: daily permit time restrictions, removal of steam pipes, ledge, extra depth, and installation greater than estimated.

W/O #401911-37601, Baker St, Highland Ave. Nashua \$214,571

(Col. AT) Direct <u>Main</u>	(Col. AU) Direct <u>Service</u>	(Col. AY-AV) Indirect <u>Costs</u>	(Col. BA+BB) Non- <u>Recoverable</u>	(Col.BE) Total <u>Recoverable</u>	(Col.BG) Estimated <u>Carryover</u>
\$329,042	\$131,158	\$65,466	(\$311,094)	\$214,571	\$ -0-

The Company provided a detailed Work Order report as well as other details from the fixed asset system, Wennsoft. The Company also provided a breakdown of the Capital Expenditures listing the direct main and direct service charges as well as any charges that were determined to be non-recoverable as agreed upon in the CIBS Program Guidelines as described in the first work order reviewed. These reports were in the form of Excel spreadsheets. The Analyst reviewed the spreadsheets and the costs listed and reconciled them to the \$14,503,496 (col. BE, Line 51).

The non-recoverable total of \$311,094 was comprised of \$189,137 of main costs and \$121,957 in services costs, which the Analyst verified using supporting data, which backed up the RAM/BRF-2 attachment. The Direct and Indirect Costs, as found in the provided General Ledger, consisted of the following:

Lastly, the Analyst reviewed multiple invoices for this work order. These included for the contractor, Mears Construction. Mears also appeared to provide various other services including construction materials such as gravel and other specialized earth materials, inspection fees, police detail charges, and fees from JDH Inspection Services. The analyst noted no exceptions while reviewing the invoices.

Overhead

The total overhead (OH) incurred in FY 2020 was \$7,274,933. This total was spread over all of the FY 2020 and jobs according to Liberty’s accounting policy. The Analyst has included the total OH figures since the 2016 FY below:

Type	2016	2017	2018	2019	2020
Pension	\$659,922	\$1,217,387	\$1,392,396	\$1,504,931	\$542,585
Benefits	\$691,386	\$305,910	\$669,772	\$846,579	\$1,695,448
Payroll Taxes	\$357,020	\$463,855	\$538,518	\$594,328	\$632,697
Other	\$2,810,000	\$3,385,272	\$3,007,551	\$2,941,980	\$4,404,203
Total	\$4,518,335	\$5,372,424	\$5,608,237	\$5,887,817	\$7,274,933
% growth in OH from previous FY:		19%	4.2%	4.7%	23%

Liberty describes the “Pension” category as all pension expenses and post-employment benefits. The “Benefits” category as described by Liberty consists of costs for employee health, life and disability. “Payroll Taxes” covered Liberty’s portion of the FICA, Medicare, FUTA and SUTA; and the “Other” category as charges for rent, utilities, back office, company insurance, incentive awards, time not worked and a percentage of corporate allocations.

The total amount of OH sought for recovery through the CIBS program should exclude OH applied to the portions of the jobs that are deemed unrecoverable per the program guidelines. From the jobs reviewed, the total amount of OH sought for recovery through the CIBS program did in fact exclude those portions of OH applied to the portions of each job that were deemed unrecoverable. Accordingly, relative to the files reviewed, most of the services costs, which include OH allocations as seen by the Analyst in the detail of expenses for each job, are not allowed for recovery through the CIBS Program, and therefore not all of the \$7,274,933 of incurred OH is included for recovery in the instant Docket.

Cost of Removal

The Analyst reviewed the Cost of Removal amounts found within the supporting materials sent by Liberty including the work order detail reports and supporting journal entries. The amount was 10% of the eligible original cost of each work order. A standard 10% Cost of Removal (COR) charge can also be found in use by other public utilities in the State of NH. The reason for using 10% is that most contractors may not separate the cost of removing the old pipe, main or service, from the overall cost of a project and therefore a typical amount of 10% has been used in numerous filings over many years. Accounting for the COR typically involves a Debit to Accumulated Depreciation and a Credit to Plant in Service for the same amounts.

Fiscal Year 2019 Carryover Projects

According to Bates page 10 of the testimony of Mostone & Frost, the total FY 2019 costs incurred in FY 2020 (carryover costs) were \$4,220,128. According to the FY 2019 CIBS Audit Report and testimony in DG 19-054 (FY 2019 CIBS program results), the estimated costs were

\$3,698,261, approximately 3%, or \$104,940, less than actual. As the carryover costs represent estimated and unknown amounts, a variance is most likely to occur from the final, known costs. According to the RAM/BRF-2 attachment, the carryover costs were for final paving restoration work and may be billed by third-party contractors/ vendors which is different than a Town or City who would bill for the degradation fee.

As stipulated in the CIBS Program Guidelines as originally agreed to in Docket DG 11-040, unless recommended by the Director of the (Gas) Safety Division of the PUC, the amount of costs carried over from one FY to a subsequent FY shall not exceed 5% of the approved budget for that subsequent FY. Liberty’s FY 2020 CIBS filing indicates the Company is not requesting more than the 5% cap in the instant docket for recovery.

General Ledger Review

The Analyst was supplied with general ledger (GL) information covering a wide selection of projects. Specifically, the Analyst reviewed the entry that moves projects from Account #107-Construction Work in Process (CWIP) to either Account 106-Plant in Service but not Classified or the actual Plant accounts such as 3760-Distribution Mains.

This journal entry detailed below records the posting of several jobs, neither just CIBS nor the sample of CIBS reviewed for this report. With the entry below, Liberty forwarded a detailed breakdown of the specific entries, by work order, that makes up the \$29,712,077 total. Using this detailed report, the Analyst traced the recoverable amount for work order #401911-37613 of \$104,544 and the recoverable amount for work order #401911-37631 of \$176,160 to the detailed breakdown of this journal entry therefore verifying that at least the sample reviewed was no longer in CWIP.

Journal Entry 1,354,842 Posted on 4/5/2020 as of 3/31/2020

<u>Account # / Name</u>	<u>Debit</u>	<u>Credit</u>
8840-2-0000-10-1618-1070 CWIP		\$29,712,077
8840-2-0000-80-1655-1080 Acc. Prov. For Dep. ²		\$ 410,384
8840-2-0000-10-1615-1060 Plant in Service		
	but not Classified	\$29,712,077
8840-2-0000-80-8610-4030 Depreciation Expense		\$ 410,384

Report Summary

In summary, the Analyst reviewed work orders, supporting documents, invoices, journal entries, excel spreadsheets of the FY 2020 CIBS Program and any other necessary supporting documentation, which accordingly, appear to substantiate the information presented in the Company’s Filing.

² Accumulated Provision for Depreciation of Utility Plant

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