STATE OF NEW HAMPSHIRE

BEFORE THE

NEW HAMPSHIRE PUBLIC UTILITIES COMMISSION

PENNICHUCK WATER WORKS, INC.

DOCKET NO. DW 13-130

NOTICE OF INTENT TO FILE RATE SCHEDULES

PRE-FILED DIRECT TESTIMONY

OF

John J. Boisvert

MAY 2013

Professional and Educational Background

Q. What is your name and what is your position with Pennichuck Water Works, Inc.?

A. My name is John J. Boisvert. I am the Chief Engineer of Pennichuck Water Works, Inc. (hereinafter "PWW" or the "Company"). I have worked for Pennichuck Water Works, Inc. since February 1, 2006. I am a licensed professional engineer in New Hampshire and Maine.

Q. Please describe your educational background.

A. I have a Bachelor of Science degree and a Master of Science degree in Civil Engineering from the University of New Hampshire in Durham, New Hampshire. I also have a Master's degree in Environmental Law and Policy from Vermont Law School in South Royalton, Vermont.

Q. Please describe your professional background.

A. Prior to joining Pennichuck Corporation, I served as a Team Leader for Weston & Sampson Engineers of Portsmouth, New Hampshire in their Water Practices Group from 2000 to 2006. Prior to Weston & Sampson I was employed by the Layne Christensen Company of Shawnee Mission, Kansas as Regional Manager for their Geosciences Division in Dracut, Massachusetts from 1994 to 2000. I completed graduate school in 1992 and was employed by Hoyle, Tanner, & Associates of Manchester, New Hampshire as a Project Engineer from 1992 to 1994. Prior to entering full time graduate programs at the University of New Hampshire and Vermont Law School I was employed by Civil Consultants of South Berwick, Maine as a Project Engineer from 1986 to 1989 and by

Underwood Engineers of Portsmouth, New Hampshire as a project Engineer from 1985 to 1986.

Q. What are your responsibilities as Chief Engineer of the Company?

A. As Chief Engineer, I am responsible for the planning, design, permitting, construction, and startup of major capital projects, including pipelines, reservoirs/dams, building structures, pumping facilities, treatment facilities, and groundwater supplies. I provide regular technical assistance to Pennichuck Water Works' Water Supply Department, Operations Department, Customer Service Department, and Senior Management.

Q. What is the purpose of your testimony?

A. I will be providing details of the Company's capital expenditures that were made in 2010, 2011, and during the test year of 2012 that are included in the Company's rate request.

Overview of Capital Expenditures

Q. Did the Company make capital expenditures during the period from January 1, 2010 through December 31, 2012 to its distribution, storage, treatment, and supply facilities?

A. Yes. The Company made capital expenditures during this period totaling $16.9 million in new assets, most of which were non-revenue producing.

Q. What do you mean by non-revenue producing assets?

A. Non-revenue producing assets are related to projects that do not result in new customers or additional revenues to the Company. Examples of typical non-revenue producing assets are projects that are the result of government

regulations such as the Safe Drinking Water Act ("SDWA"), the City of Nashua's sanitary and storm water separation projects, sometimes referred to as the combined sewer overflow project ("CSO"), City and State road reconstruction projects, and other State or Federal mandates. Capital expenditures to enhance customer service or replacements of aging infrastructure are also examples of non-revenue producing assets.

Q. Are all of the capital expenditures completed during this period (and described further below) currently used and useful?

A. Yes.

Q. What were the major focal points of the Company's capital projects in this period?

A. The Company's focus continues to be multifaceted and includes replacing, and upgrading water treatment facilities to ensure compliance with all State and Federal Drinking Water Regulations, replacing aging infrastructure consisting primarily of water mains and services, and completing water supply and water quality improvement projects for its community water systems. The Company expended $13.3 million on capital improvements within these areas during 2010 through 2012. Each of the major project areas is described in more detail below.

<u>Source of Supply, Water Treatment, Pumping, and Storage Expenditures</u>

Q. What are the major projects that the Company completed to ensure sufficient source of supply, treatment, pumping capacity, and storage?

A. There were several such projects. They are addressed below by year.

2010 Projects

Tinker Road Stormwater Best Management Practices (BMP's)

Stormwater BMP's involve measures taken to assess, control, and improve the quality (e.g. removal of nutrients, sediment, and other contaminants) of stormwater runoff into the Company's water supply reservoirs. In 2010, the Company constructed two storm water treatment facilities adjacent to Harris Pond in the vicinity of the intersection of the F.E. Everett Turnpike and Tinker Road in Nashua. The facilities treat storm water runoff from the Turnpike and from over 150 acres of moderately developed residential land in Nashua before it enters Harris Pond. This project was the highest priority identified in the Pennichuck Brook Restoration study completed in 2007. The project cost was $420,700. The NHDES provided a grant in the amount of $146,400 toward the cost of designing and constructing the storm water treatment facilities.

Taylor Falls Pumping Station

The Company constructed an addition to the Taylor Falls Booster Station in order to accommodate a second pump inside the station. The Taylor Falls booster station delivers water to the Towns of Hudson and Litchfield during the spring, summer and fall. Prior to this work there was only one pump at the station, which was capable of meeting the Hudson and Litchfield water demands, but there was no back up.

When the station was built in 1995, it was owned by Consumers New Hampshire Water Company. At that time, Consumers was required by the NHDES to provide an alternate source of supply to the Towns of Hudson and Litchfield. Consumers

contracted with the Company to construct this station as a backup. Subsequently, Consumers encountered financial difficulties and PWW acquired this service territory in 1998.

Since the construction of the station, the water demands in Hudson and Litchfield have increased substantially. In addition, the NHDES substantially reduced the permit for the amount of water that can be pumped annually from Hudson's Dame/Ducharme wells, from over 1 million gallons per day ("MGD") to 0.79 MGD. The net result of these two factors is that the Taylor Falls booster station has gone from pumping no water in 1995 to pumping over 152 million gallons in 2012 (over a seven-month usage period) resulting in an average daily pump run time of 12.1 hours. Without the addition of the second pump, a failure at the Taylor Falls booster station would have resulted in a total ban of all outside water usage in the Towns of Hudson and Litchfield, to insure that the existing wells could meet system demands, and not exceed their NHDES permitted production limits. The cost of this booster station addition was $147,400.

Glen Ridge Storage Tanks

The Company replaced a 20,000 gallon steel atmospheric tank at the Glen Ridge Community Water System in Derry because the existing tank had reached the end of its useful life, exhibiting significant corrosion on both the interior and exterior of the tank. The existing tank was cast into one wall of the Glen Ridge booster station and is integral to the station structure making its replacement more difficult. The Company replaced the single 20,000 gallon steel tank with two 9,000 gallon fiberglass tanks. The cost of the tank replacement project was $174,900 and was

funded with American Recovery and Reinvestment Act ("ARRA") funds distributed through the NHDES. Financing included a low interest loan and 50% of the project receiving principal forgiveness over the life of the loan. See Docket No. DW 09-063.

South Nashua Armory Booster Station

The Company completed the construction of the Armory Booster Station, which was also funded through the ARRA program. The project received a "green" classification based on project electric power savings made available through ARRA. The cost of this project was $381,900. The estimated electric power savings from this project of $27,000 per year were fully realized in 2012 and are reflected in the test year. The ARRA funds were distributed through the NHDES, and financing included a low interest loan and 50% of the project receiving principal forgiveness over the life of the loan. See Docket No. DW 09-011.

Emergency Generators

The Company continued its plan to have emergency power generating capacity at all of its water systems. The Company installed four emergency generators at community water systems: the Woodlands in Epping; Redfield in Derry; Valley Field in Plaistow; and, Great Bay in Newmarket. The Company also installed an emergency generator in the core system at Kessler Farm in Nashua. Additionally, the Company installed manual transfer switches at one of its community water systems and one of its core systems, Bedford Water Company in Bedford and Bowers Landing. The generators and manual transfer switches were installed to

insure continuity of service through extended power outages. The total cost for the generators and switches was $236,300

2011 Projects

Great Bay Community Water System

The Company completed major improvements to the Great Bay Community Water System pumping station in Newmarket. The improvements included the expansion of the building to accommodate an emergency generator, the addition of iron and manganese filters, new electrical equipment, and monitoring and control equipment. The water from the Great Bay wells has been untreated for the past ten years. Over the past several years, this water system has had several positive coliform bacteria results during the monthly bacteria sampling. The source of the bacteria was traced back to one of the two active wells and removed by super chlorinating the well. The well chlorination eliminated the bacteria for several months and then it returned. A video of the well indicated that the well casing and seal were in good condition and that surface water infiltration was not the source of the bacteria. After working on this issue for over a year, and after three bacteria notifications to customers, the Company determined that it should chlorinate the well water at Great Bay on a continuous basis. The addition of chlorine subsequently oxidized the soluble iron and manganese present in the well water, creating colored water. Thereafter, the Company also added iron and manganese filtration as a necessary part of the disinfection system. The total cost of the upgrades to this station was $285,300.

Harris Pond and Bowers Pond Survey

The Company, with the assistance of an underwater survey company, completed a bathymetric survey of the bottom of each reservoir. The subcontractor, Substructure of Portsmouth, NH, employed a multi-beam sonar method to collect detailed information about the reservoir bottom and sediment conditions. With this data the Company obtained an accurate estimate of the total volume stored in the reservoirs as well as useable storage in them. In the event that our secondary source of supply (the Merrimack River) is unavailable, our operators are better able to estimate the number of days of useable storage and to make informed decisions regarding water use restrictions. The survey also established baseline sediment conditions that future surveys will be compared to. The cost of the survey was $50,400.

Harris Dam

Two additional projects were completed on Harris Dam in 2011. Significant masonry repairs were made to the dam structure to repair cement mortar and to control minor seepage as required to comply with NHDES dam safety requirements. The second effort installed a new intake curtain as part of an ongoing passive water quality control effort. The combined cost of these two improvements was $166,200.

Merrimack River Pump Station Ventilation

The upgrade of the station ventilation is a follow up to a 2009 project that added a new 350 horsepower pump and replaced and existing 200 horsepower pump with a 350 horsepower pump. The existing ventilation system was inadequate to provide proper cooling inside of the station during the hot summer months with

both of the new pumps running. The high outside temperatures combined with the heat generated by the pumps would push building temperatures to over 100 degrees F. Three new roof mount exhaust fans were added to the building in order to keep internal temperature closer to the ambient outside temperature. The new ventilation system was installed for $13,165.

2012 Projects

Twin Ridge - New Well

This water quantity project involved developing a new source of supply for Twin Ridge Community Water Systems in Plaistow. The Company spent $213,500 to locate and develop a new well for Twin Ridge to supplement the water supply from the existing Twin Ridge Wells. The completion of the new well allowed the Company to restore lost capacity of the existing Twin Ridge wells and replace the well pumps in the existing wells at Twin Ridge. The Twin Ridge water system had been under total irrigation bans since 2008 due to a shortage of well production. The new well and redevelopment of the existing wells should allow for odd/even irrigation practices to occur in 2013. In addition, the new well allowed for the expansion of the distribution system to 22 new customers that had their private wells contaminated by a superfund site in their neighborhood. The cost of the system expansion was paid for by the Beede Site Group. This same entity contributed $20,526 in 2013 toward the development of the new Twin Ridge Well. See Docket No. DW 12-109.

Distribution Capital Improvements

Q. Please describe the water distribution (water main, hydrants, and service) improvements that Pennichuck completed in 2010 through 2012.

A. The Company spent a total of $10.2 million to replace aging water mains, services, valves and hydrants, as well as add water mains to interconnect smaller community water systems addressing supply capacity shortfalls. This work resulted in the replacement or addition of water mains, hydrants, and customer services during the period. The replacements and additions are broken down by year as follows:

Nashua Core Water Mains, Hydrants, & Services:

2010 8,537 linear feet
3 Hydrants
27 Services

2011 7,106 linear
2 Hydrants
30 Services

2012 10,674 linear
8 Hydrants
34 Services

CWS Water Mains, Hydrants, & Services:

2010 12,193 linear feet
0 Hydrants
1 Service

2011 0 linear feet

0 Hydrants

0 Services

2012 0 linear feet

0 Hydrants

0 Services

Q. Can you briefly describe the major projects that accounted for new water mains, hydrants, and services being placed into service and whether or not the new water mains replaced existing water mains?

A. Yes. It will be best to address this by year and by the specific system where the work took place.

2010 Nashua Core –Nashua

Over 8,500 linear feet of water main was installed in Nashua. This allowed for the retirement of 9,000 linear feet of smaller diameter unlined cast iron pipe, most of which was installed in the late 19th and early 20th century. The replacement involved work in over 30 city streets and the priority for this work was primarily driven by City of Nashua projects (sewer replacement, street reconstruction, and CSO abatement) where our combined efforts helped reduce overall project cost particularly in reducing street repair/reconstruction costs.

2010 Nashua Core – Amherst

4,565 linear feet was added in Amherst in association with a private development. The partnership allowed the Company to change the source of water supply from the Town of Milford to the Company's own source. This resulted in a purchased

water cost savings and created an interconnection with the Town of Milford resulting in a redundant source of supply for this area of Amherst, if ever needed.

2010 PWW-Derry Community Water Systems ("CWS")

Over 12,000 linear feet of water main was installed and placed into service. Approximately half of the new water main was associated with an interconnection between the Company's Drew Woods water system and the Town of Derry municipal water system. The interconnection was a cooperative effort between the Company and the Town of Derry. The project addressed water supply shortfalls at Drew Woods and the Town of Derry was able to address a water quality issue at one of their independent water system adjacent to Drew Woods. The shortfall in supply at Drew Woods was determined through a detailed hydrogeological evaluation completed by our consultant ENSR.

This work was completed based on a cost sharing agreement between the Company and the Town of Derry that calculated the proportionate cost based on the customer demand of each entity. The Company's portion of the work was funded in part by loan from the New Hampshire Revolving Fund ("SRF"). See Docket No. DW 10-105. This project also included valve and piping installation within the Drew Woods station to allow the use of purchased water and water from the existing Drew Woods wells.

The remainder of the pipeline was installed to interconnect Drew Woods and the Company's Hubbard Hill system and the Hubbard Hill system to the Company's HI & LO system. The Drew Woods and Hubbard Hill interconnection required approximately 150 linear feet of 12 inch main. The Hubbard Hill and HI & LO

interconnection required approximately 6,200 linear feet of 3-inch diameter water main. This interconnection is seasonal as the HI & LO wells are capable of meeting winter demand. The interconnecting main is used to fill the HI & LO storage tanks when customer demand exceeds well capacity. The interconnection provides a redundant source of supply to this fairly remote community water system.

2011 Nashua Core –Nashua

Over 7,100 linear feet of water main was installed in Nashua. This allowed for the retirement of approximately 7,200 linear feet of similar sized and smaller diameter unlined cast iron pipe most of which was installed in the late 19th and early 20th century. The replacement involved work in over 25 city streets and the priority for this work was primarily driven by City of Nashua projects (sewer replacement, street reconstruction, and CSO abatement) where our combined efforts helped reduce overall project cost particularly in reducing street repair/reconstruction costs.

2011 Nashua Core – Amherst

No water main replacement occurred in Amherst in 2011

2011 PWW-CWS

No water main replacement occurred in the PWW-CWS in 2011

2012 Nashua Core –Nashua

Over 10,600 linear feet of water main was installed in Nashua. This allowed for the retirement of approximately 13,500 linear feet of similar sized and smaller diameter unlined cast iron pipe most of which was installed in the late 19th and

early 20th century. The replacement involved work in over 25 city streets and the priority for this work was primarily driven by City of Nashua projects (sewer replacement, street reconstruction, and CSO abatement) where our combined efforts helped reduce overall project cost particularly in reducing street repair/reconstruction costs. One exception to this is the relocation of a water main at the Nashua Airport. An asbestos cement water main was installed in 1963 under a section of expanded runway and aircraft taxi-way. The cost of relocation was shared between the Company and the Nashua Airport Authority. The new main was installed within an easement granted by the Nashua Airport Authority.

2012 Nashua Core – Amherst

600 linear feet of replacement water main was installed in Amherst in association with a Town roadway reconstruction project. The work resulted in the same amount of retirement of asbestos cement pipe installed in 1951.

2012 PWW-CWS

No water main replacement occurred in the PWW-CWS in 2012

Q. Is this expected to be the anticipated level of pipeline replacement/rehabilitation in the future?

A. Like any other older city, the City of Nashua has its share of aging infrastructure. Much of this infrastructure is beyond its useful life and in many cases has reached the point of failure requiring complete replacement. In addition, the City of Nashua has an active CSO elimination/control program. Consequently, the planned joint water and sewer replacement projects that have helped reduce paving costs associated with water main replacement projects for the Company is

expected to continue into the foreseeable future. The Company therefore expects similar levels of pipeline replacement for the foreseeable future.

Q. What other types of capital expenditures has the company undertaken to maintain and enhance service?

A. There have been other efforts classified as capital projects that fall into this general category. These projects are predominantly replacements of plant and equipment as well as technology upgrades that improve operational efficiency. Examples of these projects include vehicle replacements, booster pump replacements, well pump replacements, treatment equipment upgrades and replacements, filter media change outs, improvements to buildings and grounds (roofs, painting, road repair and resurfacing), electrical system upgrades, SCADA and communications additions and enhancements.

Q. What other capital initiatives is the Company pursuing to improve planning, reduce costs, improve efficiency and provide higher levels of customer service?

A. The Company has completed the initial phase of an Enterprise Asset Management Initiative. The initial phase set forth a road map to implement the initiative over a five to seven year period. The program consists of three interdependent components including a Geographical Information System ("GIS") in order to improve record dissemination of buried assets, a computerized Management and Maintenance System ("CMMS") to plan and track work and associated costs to specific company assets, and finally a means to convert our operations from a paper work order system to and electronic work order system

otherwise known as DPaC (Data Presentation and Collection). The Asset Management system will facilitate asset data extraction and analysis in order to enable the conversion of operational and financial data to useful decision making information. Armed with asset specific information the Company's ability to predict and plan for the replacement of aging infrastructure will improve. In addition, the Company will continue to seek low cost financing through the NHDES State Revolving Fund. A new requirement for this funding will be that any utility seeking SRF financing will be required to have an appropriate level of Asset Management System in place to qualify. The Company is a 2013 recipient of a $15,000 grant to assist with the development of its Asset Management program.

Q. Does this complete your testimony?

A. Yes.