STATE OF NEW HAMPSHIRE
BEFORE THE
PUBLIC UTILITIES COMMISSION

Re: Pennichuck Water Works, Inc.

American Recovery and Reinvestment Plan of 2009 SRF Financing

For Green Infrastructure

DW 09-

DIRECT PREFILED TESTIMONY OF DONALD L. WARE

June 9, 2009

Professional and Educational Background

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

A. My name is Donald L. Ware. I am the President of Pennichuck Water Works, Inc. (the "Company"). I have worked for the Company since 1995. I am a licensed professional engineer in New Hampshire, Massachusetts and Maine.

Q. Please describe your educational background.

A. I have a Bachelor in Science degree in Civil Engineering from Bucknell University in Lewisburg, Pennsylvania and I completed all the required courses, with the exception of my thesis, for a Masters degree in Civil Engineering from the same institution. I have a Masters in Business Administration from the Whittemore Business School at the University of New Hampshire.

Q. Please describe your professional background.

A. Prior to joining Pennichuck Corporation, I served as the General Manager of the Augusta Water District in Augusta, Maine from 1986 to 1995. I served as the District's engineer between 1982 and 1986. Prior to my engagement with the District, I served as a design engineer for the State of Maine Department of Transportation for six months and before that as a design engineer for Buchart-Horn Consulting Engineers from 1979 to 1982.

Q. What are your responsibilities as President of the Company?

A. As President, I am responsible for the overall operations of the Company, including water quality and supply, distribution, engineering and water system capital improvements. With regard to capital improvements overseen by the

Company's Engineering Department, I work closely with the Department and the Company's Chief Engineer regarding project selection, project design, project management and construction management.

Q. What is the purpose of your testimony?

A. I will be describing the Armory Booster Station capital improvement project that the Company proposes to complete using loan funds issued by the New Hampshire Department of Environmental Services (NHDES) through the State Revolving Loan Fund (SRF) using "Green" funds provided to the NHDES by the American Recovery and Reinvestment Act of 2009 (ARRA). This project will involve the construction of a new booster station along the DW Highway adjacent to the National Guard Armory in southern Nashua. The Armory Booster Station will pump water directly from the Fifield pressure zone to the Company's customers along the southern end of the DW Highway in lieu of the water reaching these customer through the Timberline Booster station into the Southwest high pressure system and then through the Spitbrook pressure reducing valve station. The Armory Booster Station will consist of three 20 HP, 750 gallon per minute pumps providing constant pressure pumping via the use of variable frequency drives.

Q. How many projects did the Company submit for "Green" funding with the ARRA Funds?

A. The Company submitted one application for a "Green" project with an estimated cost of $300,000. Per Exhibit TCL-1 in Thomas Leonard's prefiled testimony for this financing petition, a total of 14 projects, with an estimated construction cost

of over $2.5 million, were submitted to the NHDES for consideration by water departments, districts throughout the State. The Company's Armory Booster station project was ranked third out of the 14 projects submitted and is eligible to be funded with money available from the SRF ARRA financing set aside to fund "Green" projects.

Q. What constitutes a "Green" project for funding purposes by the NHDES with ARRA "Green" funds?

A. The NHDES defines "Green" projects as projects that reduce energy consumption by over 20%, produce energy using renewable resources or result in water conservation.

Q. Could you please describe the why the Armory Booster project is considered a "Green" project?

A. The Armory Booster Station will boost an average of 800,000 gallons of water per day to the Company's customers located in the south end of Nashua in the vicinity of DW Highway. Water is currently delivered to the south end of Nashua through the Company's Timberline Booster station. I have attached Exhibit DLW-1 which depicts the Company's distribution system in the area of the proposed Armory Booster Station to help clarify my testimony below. The Timberline Booster takes water from the Company's Fifield Pressure zone, with an average hydraulic grade line of 305, and lifts it into the Company's Southwest High pressure system with an average hydraulic grade line of 456. The water from the Southwest High pressure system flows by gravity to the south end of Nashua where the hydraulic grade line is reduced to 330 through a pressure reducing

valve located in a pit along Spitbrook Road. The Armory Booster Station will lift water from the Fifield Pressure system and pump it directly to the southern end of the DW Highway at a required hydraulic grade line of 330. The difference in lift requirements of 126 feet between the Timberline Booster Station and the Armory Booster Station pumping scenarios will be partially offset by a loss in overall pumping efficiency resulting from the use of Variable Frequency Drives in the Armory Booster Station necessary to provide for constant pressure pumping. In total, the Armory Booster Station will be able to deliver water to the southern end of the DW Highway with a pumping head that is 99 feet less than that required to deliver the same amount of water through the existing Timberline Booster Station. The reduced pumping head required by the Armory Booster Station will lower the required power to deliver water to the southern end of the DW Highway from 23.2 KwHr to 8.4 KwHr. The reduced pumping head required by the Armory Booster Station when compared to that of the Timberline Booster Station translates to a 64% decrease in the energy required to deliver water to the Company's customers located along the southern end of the DW Highway. The estimated energy savings of 64% exceeds the ARRA "Green" project goal of a 20% energy savings by 44%.

Q. What will be the annual savings in electric consumption the Armory Booster Station project is completed?

A. Based on the current electric rate of 11.73 cents per KwHr, the Company estimates electrical savings to be approximately $15,200 per year.

Q. What are the estimated expenses associated with a $300,000 investment in the Armory Booster Station?

A. The estimated expenses associated with the construction of the Armory Booster Station will be servicing the interest cost of the ARRA SRF Loan, depreciation expense and property tax expense. The estimated interest expense will be $6,312 per year based on a $300,000 loan with a rate not to exceed 4.208% on 50% of the loan and a rate of 0% on the other 50% of the loan. The projected property tax expense (based on a Nashua tax rate of $15.30 per thousand and a State tax rate of $6.60 per thousand) will be about $6,570 per year. The projected station depreciation expense will be about $11,200. Therefore the total estimated expenses associated with the construction of the Armory Booster station will be about $24,082 per year.

Q. Why would you build the Armory Booster Station to save an estimated $15,200 in electrical expense per year when it will create additional $24,082 of expense resulting in a net increase of $8,882 in operating expense when compared to the current pumping regime through the Timberline Booster Station?

A. If the Armory Booster Station is not constructed, the Timberline Booster Station will need to be upgraded due to a lack of redundant pumps. The Timberline Station currently consists of two 100 HP (1000 gallon per minute) booster pumps and one 300 HP (3000 gallon per minute) booster pump. During the summer months, the combined water usage of the southern end of the DW Highway in addition to the remainder of the Southwest pressure system can only be met by

running the 300 HP booster pump. The combined output of the two 100 HP pumps is insufficient to keep the Shakespeare Tanks full during normal summer conditions. If the Armory Street Booster station is not constructed the Company will need to replace the two existing 100 HP pumps in the Timberline Booster Station with two 150 HP pumps so that the Timberline station can meet the summer demands of the Southwest system with any one of the Timberline pumps out of service. If the Armory Booster is completed, it will not be necessary to replace the two existing 100 HP pumps as these two pumps will be capable of meeting the reduced summer demand of the Southwest system created by removing the demand of the southern portion of the DW Highway from the Timberline pumping regime. The estimated cost of replacing the two 100 HP pumps with two 150 HP pumps is $152,000. The expenses associated with the upgrade to the Timberline Booster Station, based on Pennichuck's last found return on investment of 7.38%,(ARRA funding would not be available for the rebuild of the Timberline booster), will be $11,218 along with an estimated increase in depreciation expense of $7,213 and an estimated increase in property tax expense of $3,329 per year resulting in a total of $21,760 in additional expenses. Therefore, the construction of the Armory Street booster will result in an estimated reduction in the Company's annual operating expenses of $12,878 per year when compared against the alternative of upgrading the Timberline booster and continuing to pump all the water required for the southern end of the DW Highway through the Timberline booster. For these reasons, the Company asserts that this project is in the public interest.

Q. Does this complete your testimony?

A. Yes.