STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

IN THE MATTER OF A PROCEEDING ON MOTION
OF THE COMMISSION AS TO THE RATES, CHARGES,
RULES AND REGULATIONS OF

SUEZ WATER NEW YORK INC.

FOR WATER SERVICE

Case No. 16-W-____

TESTIMONY OF PAULA L. MCEVOY

SUEZ Water New York Inc.
360 West Nyack Road
West Nyack, NY 10994

Q. Please state your full name and business address.

A. My name is Paula McEvoy. I am the Director of Engineering for the New York Division of Suez (formerly United Water), which includes Suez Water Westchester Inc., Suez Water Owego-Nichols Inc., Suez Water South County Inc., Suez Water Rhode Island Inc. and Suez Water New York Inc. ("SWNY" or the "Company"). My current business address is 360 West Nyack Road, West Nyack, NY 10994

Q. What is your current title and work responsibilities?

A. My current title is Director of Engineering, NY Division. I am responsible for capital investments and capital plans for the Company, as well as the other New York Division companies. In this capacity, I direct the design and construction of capital projects concerning sources of water supply, dams and reservoirs, water treatment plants, transmission and distribution systems, customer service lines, meters, distribution system storage tanks, and pumping facilities.

Q. What is your education and professional background?

A. I hold a Bachelors Degree in Civil Engineering and a Master's Degree in Civil Engineering from the New Jersey Institute of Technology. I have worked at Suez since August of 1995. Prior to accepting my current position, I have held various engineering positions. Additionally, I am a registered professional engineer, licensed in the State of New Jersey.

Q. Have you previously testified before the Commission?

A. Yes. I prepared and supported pre-filed testimony in the Companies' last rate case, Case 13-W-0295. I have also sponsored testimony before the Public Utility Commission in Rhode Island and the Board of Public Utilities in the State of New Jersey.

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to describe the Company's capital needs to sustain its system, ensure adequate supply, and provide for necessary capital improvements. I present the Company's capital projects on Exhibit PM-1. SWNY's strategy to meet the Company's long term water needs includes conservation, reduction of non-revenue water and increased supply. I address the capital requirements needed to implement this strategy.

Q. What is the main focus of the Company's capital investment plan?

A. The focus of the capital investment plan is on water supply, non-revenue water reduction, infrastructure improvements and dam safety improvements.

Other areas of significant capital investment in the Company's five year capital plans are distribution system storage tanks, blanket projects, building improvements and other typical capital upgrades. Exhibit PM-1 provides a summary of the Company's planned capital investments for the Bridge Period and Rate Year.

Q. Does Exhibit PM-1 identify those capital projects that are forecast to be in service during the Rate Year?

A. Yes. Exhibit PM-1 provides a list of capital projects that will be placed in-service for our customers from the bridge period, ending 1/31/2017 through the rate year, ending 1/31/2018. I have provided this information to Company Witness Doherty for inclusion in the Company's rate base calculation.

Q. Has the Suez Water Capitalization Policy been modified since the Companies' last rate filing?

A. Yes. Suez Water has reviewed and updated its capitalization policy to better distinguish between capital expenditures and expenses.

Q. Can you please provide an example of how this modification has been implemented in practice?

A. Yes. For example, certain installations associated with the distribution system are now properly recorded as capital activities. Under the previous capitalization policy, installations of some clamps or replacements of less than a length of water main were expensed. Under the new capitalization policy, these material costs, associated with improvements to the distribution system that increase the life of the asset, are properly capitalized.

Q. Does the new capitalization policy alter the cost of the work being performed on the system?

A. No. The change only affects what account is charged for the work. In my earlier example, the cost involved in the installations of clamps or replacements of less than a length of water main does not change. However, instead of being expensed it is capitalized. This benefits customers by resulting in a lower revenue requirement for the Rate Year.

Q. What are a few other examples of changes to the capitalization policy that impact the Company's capital plan?

A. In previous rate filings, Corporate IT costs were included in the Company's capital plan. Please see Company Witness Bouichou's testimony for information on the treatment of Corporate IT costs.

Q. Is the Company seeking to add additional water storage?

A. Yes. The Company will replace the storage tank at Sterling Lake in the Rate Year and has several other storage tanks that are planned to be installed or replaced in the upcoming years.

Q. Why is additional storage required?

A. The Company has total system storage of approximately 25 MG, and the max day in 2010 was 47 MG. The 10 State Standards recommend that systems have sufficient storage to meet domestic demands plus fire flow, recognizing

that this requirement can be reduced providing that there are standby generators at system production sites, such as SWNY has in place. In addition, the American Water Works Association ("AWWA") manual M42 discusses how to size a storage tank to buffer peak flows, but not cause water quality issues due to inadequate water turnover within the tank. SWNY plans to add additional storage in the system to better buffer the peak system flows. Accordingly, SWNY plans to add additional storage in two pressure districts in the system in the future and replace a tank that is beyond its useful life in the rate year.

Q. Can you describe how you categorized the capital projects on Exhibit PM-1?

A. The projects shown on PM-1 are categorized as follows: non-revenue water projects, water supply improvements, water quality improvements, infrastructure improvements, operations improvements and blankets.

Q. Please explain further the Non-Revenue Water Projects shown on PM-1.

A. The following projects are shown:

Non-Revenue Water Projects:

1. Installation of Advanced Meter Infrastructure ("AMI")

AMI allows the Company to obtain consumption data that is on a consistent timeframe with production data. Such data enables the Company to more accurately determine daily real water losses on the system, thus creating the ability to find leaks and repair them faster.

AMI also helps identify apparent losses where a customer's meter has stopped reading or is inaccurate. AMI will also assist the Company in detecting and reducing theft of water. The AMI system is comprised of a combination of endpoints (RFs) to pick up the flow at the meter, receivers placed on antennas to collect the data from the endpoints and computer systems that process and analyze the data. The AMI system rollout is underway and is expected to be substantially completed by 2018.

2. Implementation of District Meter Areas ("DMAs")

DMAs are a method to break the system into smaller metered districts (between 1,500 and 5,000 connections per DMA) in order to perform mass balancing – which determines how much water went into the area, how much was registered at individual meters, and how much is Non Revenue Water ("NRW"). The breakdown of required DMAs per pressure district is shown below, although it may be necessary to install additional DMAs in the future to further enhance the available data. Existing pressure districts with less than 3000 existing connections will not be further sub-districted under DMA.

Pressure District	Total No. of Connections in Pressure District	Proposed No. of DMA Zones	Average No. Services per DMA Zone	No. of DMA Metering Sites Required
PD10 [1]	29,451	8	3,681	23
PD95	11,644	5	2,328	7
PD20	15,659	7	2,237	18
PD40	6,226	2	3,113	4
PD33	2,630	2	1,315	1
			TOTAL:	**53**

DMAs allow the Company to better monitor flows into a smaller system area. Using meter readings from within the DMA zone, the Company can determine with greater granularity those sections of the system that are experiencing greater leakage, loss and/or theft. Similar to AMI, breaking the system down into smaller DMAs allows leaks to be found and repaired faster because they are easier to pinpoint. DMA construction is planned to start in 2016 and be fully completed in 2019. The cost benefit analysis for this project was completed as part of the Halcrow Study in Suez Water Westchester Inc. Please see Company Witness Graziano's testimony for additional information. AMI and DMAs together are an optimal mechanism to allow the Company to determine the volume of water lost through real and apparent losses, where the losses are occurring, and find the best means to correct the losses. Finally, utilizing DMAs in combination with AMI provides the Company with new information that allows the Company to make better informed decisions on overall underground infrastructure improvements needed in the water system.

3. <u>Pressure Reduction</u>

Pressure Management is another key component to reducing NRW. Higher pressure increases the rate of NRW in a system. System pressure can be reduced with Variable Frequency Drives ("VFDs") on pumps, the installation of pressure reducing valves, or redistricting existing areas into lower pressure zones. A complete engineering

study and cost benefit analysis is required to analyze the impacts of pressure reduction prior to making changes. SWNY is in the process of evaluating alternatives for pressure reduction and will begin implementation of these alternatives in 2017.

4. Strategic Meter Initiative

The Company began a strategic meter initiative, targeting its 60 largest metered accounts. For these accounts, the Company performed a full meter body change-out. Previously, only the meter reading head had been replaced in accordance with the Commission's meter change-out schedule for large meters. Replacing the full meter body for older meters resulted in more accurate and increased meter readings and as a result, the Company plans to expand this meter initiative to additional large body meters that are due for replacement, providing the meter testing indicates that the full change-out is beneficial.

Q. Please elaborate on the Supply Improvements shown on Exhibit PM-1.

A. The following supply improvements are shown:

Supply Improvements:

As part of the June 30, 2015 "*Report on the Feasibility of Incremental Water Supply Projects and Conservation Opportunities in Rockland County, New York" ("June 30th Report"),* SWNY outlined potential opportunities to increase supply in the system. In addition, improvements are required at some existing supply wells to ensure that they continue to operate properly as

a supply source for the system. Many of the additions outlined in the report are proposed to be part of a surcharge as outlined at the end of this section

1. <u>Increased Supply from Interconnections:</u>

The June 30th Report also identified adjacent systems that may have the ability to provide additional water to SWNY. In order to obtain additional supply, SWNY would need to obtain all required permits, including New York Department of Environmental Conservation ("DEC") permits to connect Public Water Systems and to make infrastructure improvements. These infrastructure improvements would need to include improvements to the existing Blaisdale Pump Station. Planned improvements to this station are needed to allow SWNY to take water from Suez Water New Jersey during emergencies and would require approval and permits from the Rockland County Department of Health ("RCDOH") and the New Jersey Department of Environmental Protection. Additional permitting is planned to allow the station to be operating during periods of peak demand as well.

2. <u>Optimize Ramapo River Supply:</u>

The Company is permitted to use up to 14 MGD at the Ramapo Valley Well Field, ("RVWF"), and reliably takes 7 MGD from this well field. However, when the Ramapo River has low flow, the reliable yield is reduced. In fact, during peak summer months, the reliable yield from the RVWF is only 4 MGD. There are several options to increase the flow in the Ramapo, which will not only increase the yield of the SWNY system but will also have a positive impact on the ecological environment of the Ramapo River. A plan to maximize the

Ramapo River supply was outlined in the June 30th Repo**rt**. Improvements identified in the June 30th Report include implementation of the Groundwater/Surface Water Model – Phase one. The first phase of this project is to create a 3-dimensional ground and surface water model of the Ramapo River along the RVWF and create a decision support tool to optimize the well field operation. This tool will allow SWNY to optimize pumpage at the well field while maintaining river flow. This phase is planned to be completed in 2017.

3. <u>Ramapo Well Field Well 84 Well Improvements:</u>

The New York State Department of Health ("NYSDOH") has been evaluating the wells in the Company's system to determine if any wells should be categorized as Ground Water Under the Direct Influence of Surface Water ("GWUDI"). In order to make the determination if a well is GWUDI, the NYSDOH requires quarterly sampling of the well water. If the sampling detects elevated levels of particles that are normally found in surface water, it may mean that the water quality in the wells is directly influenced by surface water. In that instance, the NYSDOH can declare that additional treatment for the well must be provided before it can be used. This additional treatment includes engineered filtration, a UV disinfection system and contact time piping to enhance disinfection. In 2012, RVWF Wells 84 and 97 were declared GWUDI by the NYSDOH. The RVWF is the second largest source of water for the Company. These wells were taken out of service when the GWUDI determination was made and a cost benefit analysis performed to determine the most cost effective method to treat the wells. Treatment is complete at

RVWF 84 and the well was approved to be placed back in service in December 2015. Design and permitting for RVWF 97 will be completed in 2016 with construction in 2017 and 2018.

4. Upgrade Grandview Arsenic Treatment:

The Grandview Wells have an existing treatment system in place for the removal of arsenic. Arsenic is a semi-metal element that occurs naturally in rock and soil in this area. The cost benefit analysis for this project was done in 2012, prior to the first phase of the treatment upgrade being completed. In 2017, the Company plans to replace the existing treatment trains at the Grandview well field. Additionally SWNY will construct a building around the treatment facility in compliance with a request from the RCDOH

5. Maintain Water Supply Capacity / Water Quality:

Existing water supplies naturally lose capacity over time (e.g. equipment efficiency losses/degradation). Periodically new laws or regulations may also be promulgated that require capital investment in order to allow continued operation of existing water supplies. In 2017 and beyond, SWNY will need to provide additional disinfection contact time (CT) at a number of wells. The Company plans to meet maintain these wells in order to meet its short term capacity targets by making investments at the following sites:

a. Monsey 30

b. Wesel Road 32

c. Norge 64

d. Elmwood 66

e. Cherry Lane 68

f. Pine Brook 69

Potential future projects, besides additional wells requiring treatment for GWUDI also include Installation of de-aeration facilities for wells showing signs of excessive entrained / dissolved air (e.g. Lakeshore 73, Eckerson 71 and Birchwood 70).

Q. Please elaborate on the Supply Improvements shown on Exhibit PM-1.

A. The following Dam safety improvements are addressed:

Dam Safety Improvements

1. Blue Lake Dam Improvements: Under DEC Regulations, SWNY is a part owner of the Blue Lake Dam, which is located on Sterling Forest Lake in Warwick, NY. Sterling Forest Lake is the water source for the Blue Lake Water Treatment Plant. The Blue Lake Dam is on property currently owned by Watchtower Bible and Tract Society of New York ("Watchtower"). SWNY entered into an agreement with Watchtower where Watchtower would make the improvements to Blue Lake Dam required by the DEC and SWNY would make a contribution to the work upon completion. The work was completed in 2015 and SWNY will make the required contribution of $824,000 once the final documentation has been provided by Watchtower.

Dam Maintenance Improvements

- **2. <u>Indian Kill Dam Outlet Replacement</u>:** The Indian Kill Dam is located in Orange County and is the site of the Indian Kill Water Treatment Plant. A dive inspection performed as part of DEC inspection requirements determined that improvements were required at the low level outlet pipe, the sluice gates, and the intake tower. SWNY is in the process of designing the outlet valve replacement and plans to bid the work and complete the construction in the 2016.
- **3. <u>Rehabilitate Spalled Concrete at Lake DeForest Dam</u>:** This project is to rehabilitate spalled concrete at the Dam and in the Howell Bunger Valve Chamber. SWNY is in the process of designing the first phase of the concrete rehabilitation planned to be bid and constructed in 2016.
- **4. <u>Toe Drain Replacement at Lake DeForest Dam</u>:** A recent inspection determined that the toe and joint drains at the Dam are damaged. This project is to replace the damaged sections of the drainage pipe in compliance with DEC regulations. This work was bid in 2015 and is under construction.
- **5. <u>Potake Pond Low Level Outlet</u>:** The DEC dam safety standards require that each dam have an operable low level outlet so the reservoir can be drained in an emergency to protect the dam. The low level outlet for the Potake Pond dam has become inoperable and it must be rehabilitated or replaced. SWNY is in the

process of designing the outlet valve replacement and plans to bid the work and complete the construction in the 2016.

Q. Please elaborate on the Treatment Plant Improvements shown on Exhibit PM-1.

A. The following Treatment Plant safety improvements are addressed:

Improvements at Lake DeForest Treatment Plant:

1. Sludge Drying Bed Collection System:

This project is to replace the underdrain system of the sludge drying beds to allow for more efficient/quicker drying of the lagoon solids, which will speed up the solids processing process and reduce the sludge removal costs. In addition, we will add an articulated block system at the bottom of the drying beds to facilitate sludge removal. The testimony of the Company's O&M Panel more thoroughly addresses sludge removal costs.

Q. Please describe further the Storage Improvements shown on Exhibit PM-

A. The following Storage safety improvements are addressed:

Storage Tanks:

1. Sterling Tank:

The Sterling Lakes Tank is a 200,000 gallon storage tank that serves a small area in Warwick, NY. The tank has reached the end of its useful life and requires replacement. The Company made numerous welds on the system in 2015 to repair leaks and intends to do a full replacement once design is completed and all necessary permits are received.

2. Other future projects :

SWNY plans to build additional storage in the system. These projects are in the SIC section of this testimony

Q. Can you elaborate further on the infrastructure improvements shown on Exhibit PM-1?

A. The following infrastructure improvements are addressed:

Infrastructure Improvements:

1. UIRP

The Company owns and maintains over 1,000 miles of transmission and distribution water mains. Like the rest of the water utility industry, the Company faces the challenge of planning for significant asset replacement investments over the next 30 to 40 years. SWNY has a long term plan to increase the distribution system replacement rate and reduce NRW in the system. The first phase of the plan involves the installation of DMAs across the system starting in 2016 and the installation of an AMI system. The DMAs and AMI will allow the Company to better target the areas that most need capital investment and infrastructure replacement. After completion of the DMA project, the Company will steadily increase the infrastructure projects through 2020 and 2021, when the replacement rate reaches 0.7%. Projects included in the water main replacement program include various main replacement and rehabilitation projects for system reliability, to improve

service pressures, increase available fire flows, and address water quality issues in the system.

Q. Please explain in more detail the operations improvements shown on Exhibit PM-1?

A. The following operations improvements are addressed:

Operations Improvements:.

1. SCADA implementation – SWNY's SCADA system allows remote monitoring and operation of our facilities. SWNY is currently evaluating the SCADA system and a significant project for the replacement of outdated components and implementation of new technology is anticipated to start in 2017 and continue through 2021. SWNY will need to keep the existing system operating while the replacement is ongoing.

2. Building Improvements – SWNY will begin evaluating the ingress and egress at the West Nyack office in 2017, and revamping the existing Maintenance Building to better accommodate the needs of our staff. Over the next few years the Company plans a series of projects to address these issues. The building entrance is located along a curve in the West Nyack Road. The first project will be to improve the ingress and egress at the West Nyack office by allowing customers to exit opposite Parkway Drive. The second phase would be to renovate the existing material storage area to allow this area to be used for safety tailgates, staff meetings and other training sessions.

Q. Please generally describe the Company's other capital projects included in Exhibit PM-1.

A. The remaining capital projects included in Exhibit PM-1 are more self-explanatory, but are required to maintain asset conditions to meet customer service standards and regulatory requirements. Below is a general description of these projects by major category.

- **Treatment**: This category includes replacement of chemical equipment and other treatment equipment as needed to maintain the treatment production capability and meet water quality standards / regulations.
- **Pumping**: This category includes replacement of pumping facilities to meet the system water demands, and replacement / upgrade of existing SCADA equipment required to provide effective system monitoring and control.
- **Transmission and Distribution**: This category includes new and replacement water mains, valves, and hydrants. All of these projects are needed to meet the demands in the distribution system, improve fire flow, maintain water quality and provide adequate service pressure to customers.
- **Services**: This category includes the installation of new domestic and fire services to meet the growth in the system and replacement services to improve water quality and maintain supply / pressure.
- **Meters**: This category includes the installation of meters for new customers and replacing meters in accordance with regulatory requirements. Replacement meter reading equipment is also included to maintain efficient

and effective meter reading operations and allow AMI to be implemented throughout the system.

- **Information Technology**: This category includes GIS improvements, printers/plotters and other computer equipment that is required to maintain efficient operations.
- **Safety and Security**: This category includes safety and security improvements including cameras, building improvements, fencing, and arc flash. These projects are required to maintain security of our facilities and supplies, and provide for a safe work environment for our employees and our customers.
- **General**: This category includes new and replacement tools and work equipment, and replacement office furniture as required for efficient operations.

Q. Are there any other proposed changes related to cost recovery for the capital program?

A. Yes. The Company is proposing to add a new surcharge mechanism for system improvement, the System Improvement Surcharge ("SIC").

Q. Does the Company currently have such a surcharge mechanism?

A. No. However, the Company has previously had surcharge mechanisms for water main replacement work and short term water supply improvements.

Q. What is the goal of the SIC mechanism?

A. The Company proposes to utilize this surcharge for projects that increase the water supply as well as projects that have significant permitting or other difficult regulatory issues.

Q: How does the Company select projects for inclusion in the SIC for recovery?

A: SWNY proposes to recover through the SIC the revenue requirement associated with certain large, long-term or multi-year capital projects pertaining to the Company's source of supply, dams and treatment facilities that are scheduled to be in service at a date beyond the Rate Year. The Company proposes SIC recovery to be implemented beyond the Rate Year. The SIC mechanism would provide SWNY with the financial flexibility to do the necessary work for such projects beyond the Rate Year without needing to apply for rate increases. The SIC mechanism would also afford the Company's customers financial protection because only the depreciation and return of projects reviewed and approved by Staff would be allowed recovery

Q: Would the SIC benefit SWNY and its customers?

A: Yes. In addition to the benefits described above, the SIC would provide customers with the benefits of needed system improvements, completed in a timely manner, while at the same time mitigating the potential for undue financial harm to the Company associated with the time and expense required to file for new base rates.

Q. Do any other utilities in New York, have a similar surcharge?

A. Yes. New York American Water ("NYAW") has an existing SIC that has been in place for many years to provide improvements to the existing treatment systems. SWNY's SIC would be patterned after the American surcharge, but would also include projects such as tank construction and extensive dam improvements. The SIC implemented in NYWA is primarily for treatment improvements but also includes revenue reduction projects such as building improvements.

Q. What is the Company's proposal?

A. The Company is requesting that the PSC authorize an SIC for SWNY that would operate similar to NYAW, but would be expanded to include tank construction and significant dam improvement projects. Please see the testimony of the Company's O&M Panel for the proposed cost recovery mechanisms associated with the SIC.

Q. Would these projects be included in the Company's base rates?

A. No. The projects planned to be included in the SIC would be removed from the planned capital additions in the current rate filing. Instead, the projects would be funded via operation of the SIC. As the projects are completed, the documentation would be provided to the Commission for audit purposes.

Q. Has SWNY included projects that are not new water supply projects in the proposed SIC list of projects?

A. Yes. SWNY has included projects that may require substantial permitting in the SIC. These projects are included in the surcharge to provide better value for our customers. SWNY estimates when the project will be in service based on anticipated permitting timeframes. However some projects, specifically new tank construction and major dam improvement can have unpredictable permitting timeframes and including these projects in the SIC will ensure the required upgrades are not included as capital additions prematurely.

Q. Please explain how permitting can delay a project?

A. Extensive regulatory review or planning board approvals can cause unexpected delays to the project schedule. Some treatment and storage tank projects can invoke significant public involvement that requires many additional hearings and discussion before the project can proceed. The Company is looking to include these projects in an SIC so the projects are not included in rates until the project is fully in service.

Q. Has a list of projects proposed to be made part of the SIC been prepared?

A. Yes. Exhibit PM-2 is a description of the projects identified to be included in the SIC.

- **Lake DeForest Water Treatment Plant** –The LDF Water Treatment Plant, located on Old Mill Road in Clarkstown NY, provides approximately 1/3 of the SWNY water supply. The Plant treats raw water from the 5.7 billion gallon Lake DeForest Reservoir and has a firm capacity of 10 MGD. The Plant has been in operation for approximately 60 years, with some significant treatment

improvements including the addition of a dissolved air floatation system in 2002 to better remove flocculated particles prior to filtration. Changing water quality regulations will require that SWNY perform another large treatment modification project at the LDF Plant to ensure continued compliance with regarding disinfection byproducts, TOC, manganese removal, algae treatment, and turbidity. It is anticipated that the first phase of this project will be in service by 2019.

- **New Production Wells:** The June 30th Report identified potential solutions to the water supply issues in Rockland County. One potential solution is the installation of new production wells. The anticipated costs for the installation of these wells range from approximately $2 million to $3 million per site, although if additional treatment is required the cost will increase. The schedule for this work is dependent on the viability of the test wells and permitting.
- **Ramapo River Augmentation:** SWNY is studying alternatives for the Ramapo River to maximize the flow at the Ramapo Valley Well Field. As outlined earlier in my testimony, this is a multi-phase project and the timeline for final completion has not been established. The first phase of this project is expected to be complete by 2017 and is not anticipated to be part of this SIC. Subsequent phases are dependent on the results of the groundwater/surface water model and the scope and schedule have not been established.

- **Radionuclide Treatment Sparkill Well**: Installation of radionuclide treatment at the Sparkill Well Field. This wellfield currently has radionuclide levels near the Maximum Contaminant Level (MCL) and the well is not normally in service. Radionuclides are radioactive isotopes that can occur naturally or result from manmade sources. Natural radiation comes from cosmic rays, naturally occurring radioactive elements in the earth's crust, and radioactive decay products. Since these radionuclides are present in soil and rock, they can also be found in groundwater and surface water. Typical radionuclides found in drinking water sources are isotopes of radium, uranium and radon, among others. Treatment options for radon removal are aeration and granular activated carbon (GAC), with aeration being the most cost effective. Options for the removal of radium include ion exchange, lime softening, reverse osmosis, nanofiltration, co-precipitation with barium sulfate, greensand filtration, and GAC. Uranium can be removed by many of the same treatment methods as radium, as well as by enhanced coagulation/filtration. Radionuclides occur naturally as trace elements in rocks and soils as a consequence of the "radioactive decay'' of uranium-238 (U-238) and thorium-232 (Th-232). Alternative treatments include Greensand filtration, Lime softening and Cation exchange. Construction of the proposed treatment is expected to start in 2018 or 2019 and cost approximately $2.5 million.
- **Iron and Manganese Treatment:** Iron and Manganese levels in the Garnerville 46 and Bardonia 19 wells have been trending upwards over the years. While based on the current levels, treatment is not required at this

time, it is anticipated that treatment will be required in the near future. This project will include the evaluation of the need for treatment at these wells, and the design and construction of Iron/Manganese removal facilities. Work is expected to take place around 2020, and will cost approximately $1 million.

- **New Haverstraw Storage Tank:** This project involves the installation of a new 3 MG storage tank near the existing Haverstraw Tank to better serve the system and allow for maintenance on the existing Haverstraw Tank. Although this is not a water supply project, this project is appropriate for inclusion in the SIC because the Planning Board approval process may take longer than expected. Construction is expected to be completed in 2018/19 and cost approximately $4.3M. If Planning Board approval and permitting is completed earlier than anticipated, construction may begin in 2017.
- **New Monsey Storage Tank:** This project involves the installation of a new 2 MG storage tank at the site of the former Monsey Storage Tank. This tank will allow pressure to be reduced in the area while maintaining adequate fire flow. Although this is not a water supply project, SWNY is requesting to include this project in the SIC because the Planning Board approval process may take longer than expected and including this project as part of the SIC will provide better service for our customers by allowing accurate cost recovery for the required work when the project is placed in service. Construction is expected to be completed in 2020 or 2021 and cost approximately $3 million.
- **Dam Stability Improvements at Lake DeForest Dam:** This project does not increase water supply directly, but is necessary to continue operating Lake

DeForest Water Treatment Plant. The current Dam Safety regulations require an engineering assessment ("EA") to have been completed for High Hazard Class C dams by August 2012 to ensure the dams meet the current standards. The EA was completed at the Lake DeForest Dam and submitted for further assessment to the DEC Dam Safety Group ("DEC" or "Dam Safety"). The EA included visual and underwater inspections, geotechnical analysis including rock corings of the dam, installation of piezometers, spillway analysis updated for the updated site specific probable maximum flood, and an embankment analysis. Based on the initial analysis, it is projected that the DEC will require capital improvements be made to the Lake DeForest Dam to meet the revised DEC regulations including 6 NYCRR Part 673 Dam Safety Regulations. SWNY anticipates that Dam Safety will require upgrades to the Dam, but the scope and schedule have not been finalized.

- **Stony Point Dam:** The Stony Point Dam was constructed in 1902 to provide water for the Stony Point Treatment Plant. The Stony Point Treatment Plant has been removed from service. SWNY has been evaluating a long term solution for this dam, which will likely require either providing additional support for the dam structure, or breaching the dam. SWNY will work with Dam Safety on the ultimate solution for this dam. The cost and schedule for this project has not been established. This project is planned to be included as part of the SIC to provide better service for our customers by allowing accurate cost recovery for the required work rather than including an engineering estimate in the rate filing that may change when the project scope

is finalized. The current estimate is to complete the work by 2018 for a cost of approximately $1.5 million.

- **Indian Kill Dam Improvements:** This project does not increase water supply directly, but is necessary to continue operating the Indian Kill Water Treatment Plant. Like the DeForest Dam Improvements, the scope and schedule for this project has not been established by Dam Safety, although the Engineering Assessment was submitted in 2015 as required for this class dam. This project is planned to be included as part of the SIC to provide better service for our customers by allowing accurate cost recovery for the required work rather than including an engineering estimate in the rate filing that may change when the project scope is finalized. Cost for this work is currently estimated at $5.8 million with an anticipated construction date of 2021. The cost for this work is dependent upon Dam Safety's recommendations for this site.
- **Sludge Handling of Lake DeForest Treatment Plant residuals:** The solids handling system is being evaluated and will need to be upgraded to ensure continued compliance and reduce operating costs associated with disposal of the lagoon sludge. There are several potential alternatives being evaluated as a long term solution to handling lagoon residuals. The final solution is currently expected to be constructed in 2021; however that timeline could be reduced if permitting issues are resolved faster than anticipated. The cost of this project will vary depending on the alternative selected.

Q. Does the Company provide water and fire protection to the entire area within its franchise area?

A. No, there are areas within our franchise area that are currently served by private wells and do not have fire protection from the Company system.

Q. Is the Company evaluating extending its service territory for the purpose of expanding fire protection in Rockland County?

A. Yes, the Company is evaluating extending service for fire protection to some areas of Rockland County that currently do not have fire protection. This may involve incurring a large upfront expense, which has to be weighed against the potential cost of the damage a large fire can do, especially in areas near parkland.

Q. Does the Company have any plans to paint its tanks?

A. Yes. The Company currently plans to paint one to three tanks per year. Exhibit PM-3 provides a schedule of the planned tank paintings with estimated expenses. At this time the Company plans to complete the Rosman Tank and the Backwash Tank at the Lake DeForest Treatment Plant by May 2016, the Clausland Tank is planned to be painted in the fall of 2016 and the Post Road Tank is planned to be painted in 2017.

Q. Was the Company able to complete all of the tank painting it had planned in the last rate case?

A. No. While the Company had planned to paint three tanks, it was not done due to staffing changes. SWNY had a project manager in place, who was responsible for managing its tank painting projects. The project manager who inspected the Rosman tank and the DeForest backwash tank accepted another position before the work was awarded to a contractor. SWNY was

unable to fill this key position until 2015. With training and onboarding finished, SWNY is now staffed to complete the tank painting projects.

Q. Has SWNY developed a schedule to ensure all tanks are painted in a timely manner and that required maintenance continues to be performed?

A. Yes, SWNY has developed a long term painting schedule that addresses all the tanks in our system. This schedule is shown on Exhibit PM-3.

Q. Does the Company plan to utilize more innovative solutions as part of its implementation of capital additions?

A. Yes, SWNY utilizes innovative solutions to resolve operational issues in the most cost effective manner. Given the pressures on our water sources from such factors as drought, pollution, population growth and climate change, technology innovations are necessary to ensure a sustainable water supply. Some examples of where engineering has utilized innovative techniques are:

- Installing treatment for GWUDI wells that is entirely contained within the existing building footprint for two of the GWUDI wells. While not every GWUDI well can have the treatment installed without building renovations, creative installation techniques allowed SWNY to complete the project with minimal impact and reduced the cost substantially over a typical surface treatment system. The Company will be exploring additional innovative techniques for the remaining GWUDI wells.

- Utilizing new techniques to remove entrained air at several wells. Using a new technology developed with our R&I Alliance substantially reduced the cost of implementing entrained air treatment

- Trenchless technologies – SWNY has used trenchless technologies to install new water mains and services. Specifically with DOT roadways, trenchless technology provides a large savings over typical open cut replacements. Trenchless technologies can be a more environmentally friendly technique because there is less pavement disturbed and in high traffic areas traffic backups are reduced. SWNY routinely evaluates alternative technologies to find the best solution for our projects.

- DMAs and AMI – This technology was successfully implemented in our Westchester system and is being implemented in SWNY. Suez Water Westchester received the 2015 Advancement Award from Westchester Water Works Conference in January 2016.

- Use of crushed glass as backfill. SWNY received an NAWC award for the use of crushed glass as backfill for water main replacement projects. The crushed glass is obtained from the Rockland County Solid Waste Authority and used in place of stone in the trench.

- Installation of a decant baffle box and floating baffle system at the LDF Sludge Lagoons to improve settling in the lagoons and reduce operational residual treatment costs.

- Carbon Footprint – To reduce our carbon footprint, SWNY has performed energy audits at our facilities, revaluated our meter reading routes, implemented an anti-idling policy to reduce emissions and is currently evaluating alternative technologies such as pico-turbines to save energy.

Q. Does this conclude your testimony at this time?

A. Yes.