

STATE OF NEW YORK  
PUBLIC SERVICE COMMISSION

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Proceeding on Motion of the :  
Commission to Examine United Water :  
New York Inc.'s Development of : Case No. 13-W-0303  
a New Long-Term Water Supply Source:

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SUPPLEMENTAL COMMENTS OF THE TOWN OF RAMAPO

January 8, 2014

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INTRODUCTION

At the request of many parties, the New York State Public Service Commission ("Commission") extended the deadline for submitting comments to January 8, 2014, from November 8, 2013<sup>1</sup>. This document will provide supplemental comments to those filed by the Town of Ramapo ("Ramapo") on November 8, 2013. The primary focus of these supplemental comments will be on two documents filed by United Water New York on November 8, 2013:

1. Response by United Water New York Inc. to Issues Raised During the Public Statement Hearings. ("UWNY Response").
  
2. A letter from Deborah Rizzi, Director, Communications, United Water, to Hon. Kathryn H. Burgess submitting slides from a presentation by

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<sup>1</sup> See Notice Further Extending Deadline for the Submission of Comments (issued December 3, 2013).

Daniel Miller of the Rockland County Department of Health. ("Rizzi letter").

As has been shown at the Public Statement hearings held on October 1 to October 2, 2013<sup>2</sup> in Clarkstown and on October 2, 2013 in Haverstraw, UWNY's position on the immediate need for a long-term water supply project is not supported. The facts presented in testimony at those hearings and in further written submissions by experts conclusively demonstrate that there is no longer support for a finding of need for any long-term water supply project. At the very least, the facts conclusively demonstrate that there is no immediate need for a long-term water supply project.

These supplemental comments will also address the technology chosen by UWNY to show that it is wholly inappropriate even if there was a need for a long-term water supply. In particular, the Haverstraw Water Supply Project has become so expensive that its continued development in light of the facts on this record constitutes imprudence *per se* and will result in rates that are unjust and unreasonable.

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<sup>2</sup> That hearing ran until 1:45 AM, October 2, 2013. It started at 6:00 PM the prior day with an informational session.

The Town of Ramapo wishes to thank the Commission for the extra time to comment and for the fact that this proceeding was initiated to review the basic need for a long-term water supply in Rockland County. It seems the one constant in life is change and that change must be analyzed in real time using the most recent data and experience. As has been shown in the public statement hearings, there is virtual universal agreement that there is no immediate need for an additional long-term water supply and perhaps there may never be a need for additional water supply for Rockland County.

Putting aside the hostility displayed against drinking brackish water from the Hudson River processed by one of the most expensive water treatment technologies on the market, this proceeding has provided a much needed time-out to reassess the public interest in this project. While clearly it is in UWNYS financial interest to increase its current rate base by 50%, it is not in the public interest of Rockland County residents and consumers to pay for a project that is not needed. Consider that the Haverstraw Project will produce water at at an O&M cost that is almost 4 to 6 times higher than the current cost per thousand

gallons<sup>3</sup>. Surely that is a red flag that deserves additional scrutiny and the Town of Ramapo is thankful that the Commission is providing that scrutiny. Not only does Rockland County have time to consider its long-term water supply situation, it has numerous better alternatives as were pointed out during the public statement hearings and in the submissions to date.

THERE IS NO IMMEDIATE NEED FOR A LONG-TERM WATER SUPPLY  
PROJECT FOR ROCKLAND COUNTY

According to Ms. Rizzi's letter dated November 8, 2013, it is alleged that Daniel Miller, on October 24, 2013, at a Rockland County Economic Development's Leadership Rockland meeting, concluded "Rockland needs more capacity to meet average demand by 2016 or possibly 2017."<sup>4</sup> Indeed, if that is Daniel Miller's position today that is a departure from his earlier position that a long-term supply was needed "by approximately 2015"<sup>5</sup>

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<sup>3</sup> That estimate is developed later in these Supplemental Comments. It is now understandable why UWNYS has refused to provide their own estimates of the cost of operating the desal project.

<sup>4</sup> See Rizzi letter page 2, under "2013 Rockland County Economic Development Corporation" heading.

<sup>5</sup> Alleged response from Daniel Miller at Rockland County Legislature's Environmental Committee on October 10, 2012 to a question from Legislator Christopher Carey. See Rizzi letter page 2, heading "2012 Rockland County Legislature Environmental Committee"

So at the very least, Ms. Rizzi, an employee of United Water, has presented a compelling case that there is no immediate need for a long-term water supply project. Nevertheless, the UWNY Response states "None of the information submitted in this proceeding contradicts the repeatedly-determined need for the Proposed Project." UWNY Response at page *iii*.

This is an extraordinary statement in view of the reports of several experts hired by the Rockland Water Coalition ("Coalition") along with a common sense look at the current average and peak day demands, not to mention the numerous supply options that are available in Rockland County, should a need for an additional water supply arise in the future.

In view of the extraordinary statement in the UWNY Response it is helpful to look at all of the contradictory information and data that is now in this record. The first contradictory information is contained in the Comments of the Town of Ramapo provided by the Hon. Christopher P. St. Lawrence, Supervisor. To his comments was appended an exhibit to his direct testimony that was also presented at the October 2, 2013 hearing in Haverstraw. The exhibit shows that the Average Daily Demand ("ADD") for water peaked in the 2005 to 2007 timeframe at approximately 31

million gallons a day ("mgd"). There has been a gradual decline every year in ADD since then. Whether this is as a result of the Great Recession, price elasticity of demand, UWNY conservation programs or other factors is largely irrelevant to the determination of whether there is an immediate need. The facts reflect that there is no immediate need. UWNY's self-serving assertions to the contrary simply further undermine UWNY's credibility. Here are the facts:

2013            28.3 mgd (ADD) versus 34 mgd (Capacity)

2017            29.6 mgd (ADD) versus 34.5 mgd (Capacity)

So the current situation reveals a surplus of 5.7 mgd. Even assuming all of the demand UWNY projects by 2017 come into being exactly as forecast, there will be a 4.9 mgd surplus. In percentage terms, that is 20.1% and 14.2% respectively. Given that the potential for growth over the next four years is 1.6 mgd, these are quite comfortable surpluses for planning purposes whether it be short- or long-term.

The maximum daily demand compared to the peaking capacity reveals a surplus that is twice as large:

2013            40.5 mgd (MDD) versus 52 mgd (Peak Capacity)

2017            44.4 mgd (MDD) versus 53 mgd (Peak Capacity)

So the current 11.5 mgd MDD surplus goes down to 8.6 mgd MDD surplus, again if all of the projected demand comes on line exactly as UWNY forecasts it. This demand, it should be noted includes water supply for the construction of the new Tappan Zee Bridge. That project will be constructed by April 2018<sup>6</sup> and then water demand for that project will decrease significantly.

So at the very least it has been established that there is no need for any new water supply project at least through 2017, a date that Daniel Miller appears to agree with, according to Ms. Rizzi.

One cannot look at the need for water supply in a vacuum. This appears to be the approach UWNY has taken and was even able to obtain an expert to provide "support" that price elasticity of demand does not exist for UWNY. While showing that the nonessential water use constitutes 11% of total demand, UWNY's expert clearly stated that demand was "steady". If the demand is "steady" and there is a capacity surplus as just shown, then how can there be an immediate need for a new long-term water supply?

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<sup>6</sup> <http://www.newnybridge.com/about/index.html>

Nevertheless, UWNY continues to insist "... the Project must be in-service by year-end 2015 to satisfy the projected increase in water demand in Rockland County." UWNY Response at page *iii*. Relying on a 2006 water demand forecast that UWNY claims is confirmed by the 2010 water demand forecast, UWNY states that "...the average annual demand will essentially reach the available supply level by 2014 and the peak demand will reach the peak capacity by 2018." Id.

The 2006 water demand forecast according to UWNY envisioned ADD at 34.3 mgd with the available supply at 34.5 mgd. As it now turns out exactly one-half of that forecast is accurate. The water supply will indeed be 34.5 mgd in 2015, but the demand now appears to be approximately 29 mgd, interpolating between the current ADD of 28.3 mgd and the new forecast based on known projects and willingness-to-serve letters of 29.6 mgd by 2017.

Whether UWNY's reliance on the economic recovery following the Great Recession eventually turns out to be correct (and the Town hopes that to be the case), the on-going recovery has yet to increase water demand as the actual results for 2013 reveal. 2013 ADD is slightly less

than 2012<sup>7</sup>, continuing the gradual decline from the 2005 to 2007 peak of 31 mgd.

Looking at this another way, demand has to increase 2.7 mgd to get back to the historic peak seen in the 2005 to 2007 period, yet UWNY projects demand at only half of that amount, i.e., 1.3 mgd between 2013 and 2017 if it all shows up. The bottom line is that there is plenty of time to continue to evaluate the need for a long-term water supply. The additional potential for conservation and the additional fresh-water supplies that already exist in Rockland County provide comfort if it turns out that there is a need for a long-term supply of water. Rockland County already has a variety of fresh water sources and does not need to pursue a ridiculously expensive treatment plant to process brackish Hudson River water immediately downstream from the Indian Point Energy Center.

UWNY's position on price elasticity of demand is wholly self-serving and is not supported by the vast majority of the scientific literature in the field. Appendix A that provides a limited bibliography to this research that goes back into the early 1970s in the Journal

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<sup>7</sup> This statement is subject to change based on the data from the final months of 2013 that has been requested but not received.

of the American Water Works Association, as well as other scientific journals.

The report, included in UWNY's Response, prepared by John Guastella, concludes that the majority of water usage is inelastic since it covers basic usage such as bathing, dishwashing, flushing, etc. And based on his experience with water utilities in Connecticut from 1998 to 2006, he concluded that the average annual downward trend in average customer consumption varied from 84 gallons to 1,970 gallons. The base load, measured during the winter when there is very little discretionary use, accounted for 75% to 95% of total consumption. UWNY Response, Attachment B at page 5.

Mr. Guastella then conducted a similar water use analysis for UWNY with data from 2003 to 2012. He found that the downward trend to be comparable to his work in Connecticut and that "a mere 73 gallons per customer per year" was found to exist over that time period. Id. at 7. UWNY has 65,155 single-family customers as of March 31, 2013 and projects that number to increase to 66,020 for the end of the rate year. So if the reduction observed by Mr. Guastella over the last ten years continues, then each year UWNY will need 4,819,400 gallons less of water supply. That equates to 13,204 gallons per day of reduced demand.

By 2017 the cumulative reduced demand would be 52,816 gallons per day or almost 20 million gallons per year.

Looking at this another way, the decrease in demand by the average customer can accommodate 57 new single family residential customers per year (using 84,515 gallons per year) without increasing the demand on the system.

The bottom line is that the trend of average usage is inexorably down and this is to be expected as old bathrooms and kitchens are remodeled with more efficient fixtures and appliances. New homes are significantly more efficient to begin with and are becoming more so. As UWNYS expert states in his Report

United Water's base load has been steady and there is no indication that rate changes would affect the conservation efforts which apparently most of its customers have already implemented. United Water's weather load is only 11% of its total consumption per customer. Therefore, even a 10% to 20% reduction in consumption attributable to relative price inelasticity of nonessential weather related consumption, the reduction in total average annual consumption per customer would be less than 1%.

Attachment B, page 8.

UWNYS own expert undercuts UWNYS argument that there is a need for a long-term water supply. How can there be a need if UWNYS base load "has been steady" and its average use per customer is declining? This is a pervasive fact across all of the water utilities Mr. Guastella has

analyzed. Since the 2005 to 2007 peak, ADD has declined. If one wants to average the ten years Mr. Guastella analyzed then one could say that the base load "has been steady." But that would ignore the most recent six years of history showing a decidedly declining trend in ADD.

Again the facts and UWNYS own expert demonstrate that there is no immediate need for a long-term water supply as can be seen from the testimony sponsored by the Coalition.

THE ROCKLAND WATER COALITION'S EXPERTS HAVE MASTERFULLY REFUTED UWNYS CLAIM OF IMMEDIATE NEED WHILE ALSO SHOWING THE AVAILABILITY OF SUPERIOR ALTERNATIVES WHEN A LONG-TERM SUPPLY IS NEEDED

Professor Albert F. Appleton, former New York City Commissioner of Environmental Protection, responsible for reducing NYC's water demand by 40%, provided "A Report on the Proposal to Meet the Future Water Needs of Rockland County by Building 7.5 million gallons a day (mgd) of capacity on Haverstraw Bay to desalinate Hudson River water for drinking water purposes and whether a viable demand side alternative to it exists." ("Appleton Report")

While the Report takes no position on whether the latest shortfall in projected demand constitutes "a significant long term change in forecasted demand, but it

does strongly concur that, given the size of the shortfall in projected demand, the conclusion that there is time for a far better and more rigorous planning process is indisputable." Appleton Report at page 2 (emphasis added).

Harriet Cornell, Chair of the Rockland County Legislature, concurs as she clearly stated at the October 1, 2013 public statement hearing:

And the County of Rockland is ready to take the lead on water conservation and to develop a comprehensive plan, starting with the best management practices that our comprehensive plan talks about.

And the task force, and I'm going to hope that the Public Service Commission will in some way or another endorse this task force to convene and to develop a comprehensive long term water plan, because it should be a process that's transparent, that's collaborative, that's inclusive. Its members should definitely include United Water, elected officials, the water coalition, the citizens, the organizations, the Public Service Commission, the DEC and others. And it will allow us to conduct those analyses that Professor Appleton talked about and that you'll hear more about. Baseline analyses of water consumption, trends analysis, cost benefits analysis, all of the modeling that really has not been done to date. And, fortunately, we do have the time to give this issue the attention it requires. We are not in a crisis situation.

(Applause)

CHAIR CORNELL: We are not subject to problems with health and public safety. We have the time. And until this hearing -- and I thank you once again for this hearing -- it appeared that the collective we were on the verge again of doing something that wasn't necessary, environmentally sustainable, or cost effective.

October 1, 2013 Public Statement Hearing, Transcript, pages

17 to 18.

Professor Appleton notes the dangers of "trending forward projections derived from past patterns of water use, ignoring the dynamic nature of the interactions of the many factors that can shape water demand." Appleton Report at page 3. And there is no question that price plays a role.

Third, and directly relevant to that point, is that the impacts of water prices upon water demand have not been considered. In economic terms, it is an oxymoron to talk about demand for a product without also talking about its price. As discussed below, there will be major price spikes for Rockland County water users. For any decision maker to assume that Rockland County homeowners and water users are going to passively ignore prices that will significantly impact their total household expense and their level of discretionary income and continue to use water at the same volume irregardless of price is to defy economic theory, common sense and observed experience. In fact, it is a fair question as to whether or not the experience of the last five years when water use has fallen significantly below projected demand is directly related to water price increases, combined with other pressures on the cost of running a household being experienced in Rockland County, including rises in local taxes, that have put a premium on reducing household expenses. It can never be forgotten that these responses to price increases cannot be parsed, for they all come out of the same pocket and, to the homeowner, it is the cumulative total that matters.

Professor Appleton concisely states what is needed:

...clearly what is needed is a far more sophisticated and dynamic planning process that incorporates price, better utilization of existing water supplies both locally and regionally, the incorporation of the work of USGS and others suggesting more availability of groundwater, an assessment of water waste and how much reasonable conservation measures similar to those implemented in other jurisdictions could save, and the risk levels associated with actual and potential

drought management policies, instead of just rotely applying existing safe yield numbers to assess drought vulnerability. Without such a study, there is no reliable way for the PSC, UW and other Rockland decision makers to identify in any kind of dynamic framework Rockland's future water demands and what measures will be the most cost effective way to meet it. Fortunately for Rockland, the failure of water use in recent years to meet the 2006 former demand projections and the PSC's recognition that the past planning process has been flawed and needs to be revisited, gives Rockland both the time and the opportunity to get the issue of determining Rockland's future water needs right.

Id. at 4. Professor Appleton, without concurring in the conclusion that there is a long-term need for an additional 7.5 mgd of water supply, uses 7.5 mgd as the assumed planning goal and then sets forth various alternative solutions to achieve that goal.

At the heart of Professor Appleton's Report is the emphasis on demand side management, before building expensive infrastructure or whether to use a demand side strategy or a supply side strategy<sup>8</sup>. Professor Appleton carefully defines the demand side strategy to embrace, not just conservation, but states that

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<sup>8</sup> It should be pointed out that this approach (demand side first, then supply) is consistent with the Commission's regulations. "Also, such projections shall be updated on an ongoing basis and where they show that demand will exceed supply the water corporation shall begin measures to control demand or, if appropriate, secure additional supply. " 16 NYCRR 503.4(c).

A demand side solution is a solution that focuses on better use of existing resources, instead of the creation of new ones. This can include better management of system water, better use of natural infrastructure, and a whole host of management measures such as utilizing waste water or stormwater, or tapping into surplus water from other sources. In the case of Rockland County, a demand side solution would not only include water conservation, but also, as shall be discussed below, better management of its principal water assets, the Lake Deforest Reservoir and its groundwater fields.

Id. at 10. Professor Appleton is also careful to point out that

supply side versus demand side should not be seen as an either-or, or an ideological, choice. From a holistic management perspective, the challenge for a water utility manager is to find the right balance between supply side investments in hard infrastructure and demand side management solutions. Finding that balance is a factual question, how to meet water service needs in the fastest, cheapest, and most beneficial and sustainable way possible. But, in specific instances, as with the desal plant, the question will often revolve around the choice between a specifically proposed facility and the demand side alternatives to it.

However, as Professor Appleton points out

There is very little evidence, in either the public statements of desal plant advocates, or in their responses to the many criticisms of the desal plant, or in the Environmental Impact statement, that a serious and systematic effort has been made to develop and assess a demand side alternative, despite the fact that the Coalition and many other civic groups and elected officials, responding to the desal plant proposal with its high financial costs and environmental impacts, most notably on the aquatic environment of Haverstraw Bay and high levels of energy use and its implications for global warming, have, for years, called for a look at various elements of a demand side strategy.

Id. at 12. Professor Appleton does not simply provide a

narrative to the current debate over demand versus supply side solutions, but provides a concrete strategy:

What would be the elements of such a demand side strategy? It would have three elements, developing a new operating rule for the DeForest reservoir, conserving system water through reducing water main leaks, and reducing wasteful consumer water use with a primary focus on summer lawn watering that drives up peak demand. In addition, this immediate demand side option should be followed up by development of a long term water resource strategy for Rockland County, as called for in the County Comprehensive Plan, one that would look at a whole series of measures such as obtaining access to regional water providers with water surpluses, such as New York City's upstate water system, or from water suppliers in New Jersey, particularly the Newark Water system or the Oradell Reservoir; the potential for new well fields, for better ground water recharge and storage, stormwater capture, reuse of sewage effluence, targeted price increases, and programs of water neutral housing development. The failure to undertake this two step process, first finding a viable demand side alternative and then developing a long term water resource management plan has distorted this debate and threatens Rockland County with punishing water rate increases and an unsustainable water resource strategy.

Id. at 12 – 13. Professor Appleton, drawing on the work of Robert Kecskes, former senior water supply manager for the New Jersey Department of Environmental Protection, indicated that an additional 4 mgd could be made available from the DeForest Reservoir by reducing the passing the flow to New Jersey that was originally set using a standard appropriate to hold back the salt water incursion into the Delaware River, about twice the amount of passing flow necessary to be in compliance with New Jersey's riparian

rights.

UWNY for the past five years has had an average non-revenue water usage of approximately 20%. Appendix B is a response to a discovery request that provides data for the last ten years. There is no discernible improvement. In fact, it looks like some backsliding has occurred. In any event, this level of non-revenue water is too high. Indeed, the Commission's regulations require UWNY to report when non-revenue water exceeds 18%<sup>9</sup>. With a current average day demand of 28.3 mgd, each 1% reduction in non-revenue water amounts to 0.283 mgd.

So just reducing non-revenue water to the reporting level would make over one-half million gallons of water available. UWNY has not given sufficient priority to tightening its system and this is why Ramapo Town Supervisor Christopher St. Lawrence in his testimony in the rate Case 13-W-0295, recommended a revenue decrease based on the average revenue per gallon to initially 17% and increasing that by 1% a year. Thus, UWNY would achieve over a million gallons a day in reduced non-revenue water within a few years. Isn't that a better investment than in

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<sup>9</sup> Apparently, UWNY has not been submitting the required reports to the Commission. This indicates that non-revenue water is not a high priority for UWNY. Perhaps this lack of priority is part of the strategy to "justify" the desired desalination plant.

a desal plant? It would create more local jobs as well.

A study for UWNYS comparable sister company in Westchester, concluded that a good target for non-revenue water was 15% to 18%<sup>10</sup>. This further confirms the reasonableness of Supervisor St. Lawrence's recommendation.

Patrick Withers, the Deputy Town Supervisor of Ramapo, and a long-term resident of Rockland County pointed to numerous sources of fresh water supply that appear to have been totally ignored by UWNYS in its quest to build a "white elephant."

Q: What sources are available in the Town of Ramapo.

A: There are three sources that I am aware of: the abandoned Tilcon quarry that is filled with water, the Village of Suffern Water Department and Pine Meadow Lake. The Town of Ramapo owns the Tilcon quarry and has offered it to UWNYS as a source. I am not sure why UWNYS has not accepted that offer. We have recently requested the Suffern Water Department to determine if they have surplus water that could be made available to UWNYS. I understand that there was some discussion of this possibility several years ago and I do not know where that discussion went. Also in the Town of Ramapo is Pine Meadow Lake with a surface area of 73.4 acres and a mean depth of 11.8 feet.

Q: Are there any other sources of water in Rockland County?

A: Yes. A cursory review of the lakes in Rockland County reveal the following:

Hessian Lake in the Town of Stony Point has a surface area of 30.6 acres and a mean depth of 24.6 feet.

Lake Sebago in the Town of Haverstraw has a surface

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<sup>10</sup> Non-Revenue Water Study for the United Water Westchester System, Halcrow Engineers, P.C. (June 29, 2011).

area of 294 Acres and a mean depth of 24.6 feet.

Lake Welch also in the Town of Haverstraw has a surface area of 205 acres and a mean depth of 17 feet.

Rockland Lake in the Town of Clarkstown has a surface area of 279 acres and a mean depth of 14.4 feet.

There are other lesser lakes but these lakes and the data I just reported can be found on the DEC website. While I am not an engineer, it would seem that some of these fresh water resources could be tapped, or at least investigated, for additional water supply sources before using brackish Hudson River water that will require a costly desalination plant.

In addition to the sources of fresh water identified by Patrick Withers, it is known that Nyack uses less than its full 2 mgd allotment from the DeForest Reservoir. Also it is clear that UWNY does not maximize the available supply from the Letchworth water treatment plant that it leases from New York State. See Appendix C, Response to MC-20 in Case 13-W-0295. Finally, UWNY makes annual payments to NY to access Lake Tiorati. Id., Response to MC-20(1). Rockland has plenty of fresh water if it needs more supply. Why use brackish water?

More "non-existent" contradictory evidence is found in the "Evaluation of the Need for United Water New York, Inc.'s Development of a New Long-Term Water Supply Source Based on a Review of Rockland County, New York Hydrologic Factors" by Charles F. McLane III, PhD ("McLane Report"). In the Executive Summary, Dr. McLane criticizes UWNY as follows:

UWNY has not properly incorporated, and appears to not even have properly considered, the substantial benefits of the information provided to them by the U.S. Geological Survey (USGS) in the hydrologic study and groundwater modeling reports published in 2010. Not only has this new information not been adequately addressed, but UWNY has misrepresented the findings of the USGS reports to support the claim that a new water supply project is needed. The USGS reports show that the bedrock aquifer underlying most of Rockland County is a healthy, resilient aquifer that can be sustained at current pumping levels with proper management and has the potential for expanded use. These reports also provide updated aquifer recharge estimates that are higher than those available in 2006 and support a more accurate and more positive view of the aquifer's health and reliability. Use of the bedrock aquifer numerical model, improved understanding of the strengths and limitations of the groundwater system and its interactions with surface water features, and mapped water supply well capture zones should allow UWNY to manage Rockland County's water resources in a manner that enhances the productivity and reliability of the water supply system.

In addition, the system capacity increase that UWNY contends is needed to meet future demand was developed, presented, and applied in a misleading and improper manner. In order to support the claim that a new water supply project is required for Rockland County, UWNY has provided overly conservative demand figures and fabricated a requirement for a 7.5 mgd supply increase (when in fact this number is an engineering estimate of the potential desal plant output, and not an actual water demand projection). UWNY then improperly held other water supply alternatives up against this false and overblown 7.5 mgd standard (without consideration of reasonable combinations), and then speciously "failed" each alternative when the alternative, standing alone, was unable to "compete" with the desal plant output of 7.5 mgd. To compound the problem, UWNY's alternatives evaluations, in many instances, lack the transparency required for an independent outside review. This methodology, its finding of need for an additional 7.5 mgd, and its rejection of hydrologic resource and management based sources (as opposed to a new major supply project), must be discounted as flawed and blatantly biased in favor of UWNY's selected desal plant solution. This is an

important and relevant issue in the current proceeding because several of the alternatives considered options that do not require the development of a new long-term water supply project.

McLane Report at ii to iii.

Other planning and analysis failures the McLane Report points out were UWNYS failure to consider the impact of increased rates and additional water conservation efforts, along with continuing system efficiency or operational improvements. Dr. McLane's conclusion is unequivocal:

After careful review of the USGS reports and UWNYS documents, I have come to the conclusion that a new long-term water supply project is not currently needed for Rockland County and UWNYS proposed project is unnecessary at this time. Charting of UWNYS own committed supply and projected demand data show that expected average daily demand will not exceed supply by 2025. Since 2006, UWNYS has made considerable improvements to their water supply system, and plan to continue to do so into the future according to the DEIS for the proposed project. The incremental increase in safe yield and reliability from current system improvements, when taken into consideration with reasonable demand estimates, even those developed by UWNYS in the DEIS, negates the need for a new long-term water source.

UWNYS PROPOSED DESALINATION PROJECT IS SO EXPENSIVE THAT  
THE RATES REQUIRED TO SUPPORT THE PROJECT WILL NOT BE JUST  
AND REASONABLE

Recently the Pacific Institute released a report entitled "Key Issues for Desalination in California: Cost

and Financing.”<sup>11</sup> (“Key Issues Report”)

But as recent experience in the United States and Australia has shown, desalination projects entail risks specific to large water-supply projects, including demand risk. Demand risk is the risk that water demand will be insufficient to justify continued operation of the desalination plant due to the availability of less expensive water supply and demand management alternatives. In Australia, for example, four of the six desalination plants that have been developed since 2006 are being placed in stand-by mode. Likewise, the Tampa Bay Desalination Plant is operated considerably below full capacity because demand is lower than expected and less expensive water-supply options are available. Demand risk raises serious concerns about the size and timing of desalination projects, e.g., how big and when desalination plants should be built.

This is exactly what happened to the Brockton desal plant in Massachusetts, and is more than likely to happen, as Professor Appleton predicts, if the Haverstraw Project is built and included in rates.

In reviewing the literature surrounding desalination projects, one is struck by how expensive it is compared to other water treatment technologies. If one lives in an arid or fresh water scarce region and must have water, then desalination can be a solution. So if one looks at a map of the US, the desalination projects are largely confined to Florida, Texas, California and North Carolina. All of these states have experienced rapid population increases

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<sup>11</sup> Cooley, H. and Ajami, N., November 2012.  
[http://www.pacinst.org/wp-content/uploads/2013/02/financing\\_final\\_report3.pdf](http://www.pacinst.org/wp-content/uploads/2013/02/financing_final_report3.pdf)

over the last ten to twenty years.

California has an average rainfall of 17.28 inches per year. Texas has 34.7 inches per year. Florida has 49.91 inches per year. North Carolina has 42.46 inches per year.<sup>12</sup>

Rockland County is particularly blessed with annual rainfall approaching 49 inches a year, the fifth highest average for all NY counties.<sup>13</sup> Only Florida, that is about to surpass New York in population, has a slightly higher level of precipitation.

Just the capital investment alone in the desal plant will increase UWNYS rate base by 50%. UWNYS current rate base as shown in Case 13-W-0295 is approximately \$266 million. That investment supports 34 mgd currently. So the capacity cost on average is \$7.8 million per mgd. The desalination plant for Phase I is projected to cost \$133 million and will provide 2.5 mgd of capacity. So the per mgd cost is \$53.2 million or 6.82 times the average cost of capacity.

On top of that one must add operating and maintenance expenses that includes the cost of electricity<sup>14</sup>, residuals

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<sup>12</sup> <http://www.betweenwaters.com/etc/usrain.html>

<sup>13</sup> <http://www.usa.com/rank/new-york-state--average-precipitation--county-rank.htm?hl=Rockland&hlst=NY>

<sup>14</sup> The cost of electricity can be up to  $\frac{1}{2}$  of the overall O&M.

disposal, membrane replacement, labor, property taxes, etc. UWNY has refused to provide currently estimated O&M for this project, the total rate impact could result in a doubling of UWNY's rates<sup>15</sup>. One can bet that such a rate impact will reduce the demand for water considerably turning the desalination project into a useless white elephant that will adversely affect the economy, residents and business of Rockland County.

#### CONCLUSION

No matter how many times UWNY shamelessly asserts that this project is needed immediately, the facts, as conclusively shown by the hearings and submissions in this case, provide no support whatsoever to justify the continuation of this ill-advised project.

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<sup>15</sup> Current Production Costs for UWNY (without Haverstraw) are \$1,045 per million gallons or \$1.045 per thousand gallons. Recent estimates for the cost of desalination in California range from "\$1.54 to \$2.43 per cubic meter." Key Issues Report at page 5. Assuming 37% of those costs go toward supporting the capital (*Id.* at 10), then the resulting O&M costs run between \$0.9702 and \$1.53 per cubic meter. There are 264.172 gallons in a cubic meter. Therefore, the production cost per thousand gallons runs between \$3.67 to \$5.79 per thousand gallons. This is more than 3 to almost 6 times the current UWNY cost of production. Thus, the Haverstraw desal plant is likely to cost \$3.3 to \$5.3 million a year in O&M alone. UWNY total current production cost for its existing facilities is \$10.8 million annually (exclusive of property taxes). See response to MC-27 in Case 13-W-0295. So in addition to rate base increasing by 50%, O&M will likely increase by 50% and that will double UWNY's rates.

Under the circumstances, the only sensible approach is to order UWNV to stand down from its reckless pursuit of this project. The Commission should not allow UWNV to even spend shareholder money chasing a lost cause. At the very least, the Commission, to protect UWNV ratepayers, should initiate a prudence investigation to assess how the decision to build a desalination project was made and how it came to be that the pre-construction costs rose to almost \$60 million by July 31, 2013. This is waste on an unprecedented scale – an obscenely expensive project that is not needed.

Respectfully submitted

on behalf of the

Town of Ramapo  
Christopher P. St. Lawrence  
Supervisor

## APPENDIX A

## Price Elasticity of Demand Research Papers

Hanke, S.H. and Boland, J.J. 1971. "Water Requirements or Water Demands." *Journal – American Water Works Association*, Vol. 63, Nov 1971.

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Comer D. and Beilock R. 1982. "How rate structures and elasticities affect water consumption." *Journal – American Water Works Association*, Vol. 74, June 1982.

Weber, J.A. 1989. "Forecasting Demand and Measuring Price Elasticity." *Journal – American Water Works Association*, Vol. 681, May 1989.

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Hewitt, Julie and Michael Hanemann, 1995, "A Discrete-Continuous Choice Approach to Residential Water Demand under Block Rate Pricing," *Land Economics*, 71(2): 173-192.

Espey, Molly, J. Espey, and W. Douglass Shaw, 1997, "Price Elasticity of Residential Demand for Water: A Meta Analysis," *Water Resources Research*, Vol. 33 (April):1369-1374.

Pint, Ellen, 1999, "Households Responses to Increased Water Rates During the California Drought," *Land Economics*, 75(2): 246-266.

Dalhuisen, Jasper M., Raymond J.G. M. Florax, Henri L.F. de Groot, and Peter Nijkamp, 2003, "Price and Income Elasticities of Residential Water Demand: A Meta Analysis," *Land Economics*, Vol. 79 (May):292-308.

Olmsted, Sheila M., W. Michael Hanemann and Robert N. Stavins, 2007, "Water Demand Under Alternative Price Structures," *Journal of Environmental Economics and Management*, 54(2): 181-198.

Klaiber, H.A., Smith, V.K., Kaminssky, M., Strong, A., 2010, "Estimating the Price Elasticity of Demand for Water with Quasi Experimental Methods," Presented at the AAEA, CAES, & WAEA Joint Annual Meeting, Denver, Colorado, July 25 – 27, 2010.

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## APPENDIX B

**Municipal Consortium**  
**INTERROGATORY/DOCUMENT REQUEST**

United Water New York

Request No.: MC-6

Requested By: Daniel P. Duthie, Esq.

Date of Request: August 26, 2013

Response Due: September 5, 2013

Witness: Paula McEvoy

Subject: Non-Revenue Water

1. Please provide the non-revenue water statistics both in mgd and as a percentage of supply for the last ten years.

**Response:** The following table summarizes the non-revenue water statistics:

Year	Non-Revenue Volume (MG)	Non-Revenue (%)
2003	1,852.057	17.78%
2004	1,874.396	17.56%
2005	2,065.844	18.30%
2006	2,174.587	19.27%
2007	2,307.669	20.07%
2008	2,090.247	19.08%
2009	2,353.892	22.63%
2010	2,140.011	19.72%
2011	2,469.009	23.28%
2012	2,115.047	20.52%
TEST	2,053.132	19.88%

2. What are the company's goals to reduce non-revenue water in the rate year and over the following two years?

**Response:** The Company's goal is to reduce non-revenue water as low as possible. To achieve this goal, a specific focus will be placed on reduction of apparent losses by increasing measurement of consumption to more accurately account for the system demand. Additionally, real loss management remains critically important. The Company

currently repairs most leaks within hours of discovery and will continue this practice. The Company has also replaced approximately 16-miles of mains as part of the Underground Infrastructure Replacement Program (UIRP) since 2006. This represents approximately 0.26% of the system per year; an August 2012 article in Journal AWWA entitled EPA Communique indicated the current documented industry average is 0.5% per year. The UIRP projects provided various service level improvements including: increased pressure and fire flow availability, improved water quality, and increased transmission capacity and flexibility. Continued capital investments in the distribution system in the form of a main replacement program remains a critical component of real loss management.

The Company recently hired a non-revenue water Manager to oversee all initiatives dedicated to reduction in non-revenue water. Some examples of recent initiatives include:

- The Company is proposing a shift to monthly billing which will enable a direct comparison of production and consumption on a monthly basis and eliminate the lag that is inherent in the analysis for a system with quarterly billing. Divergences of production and consumption will be more evident in monthly data sets which will enable to Company to focus its resources in a more precise and timely manner.
- District meters have been installed to bisect the Company's largest pressure district into two district metered areas (DMA's). The Company is proposing to create additional DMA's in this pressure district and to introduce the practice across the remainder of the distribution system.
  - o A shift to monthly billing will maximize the effectiveness of DMA's by allowing near real time comparison of production and consumption by DMA. Monthly billing and DMA's will reduce the Company's response time to address non-revenue water and also the geographic footprint where it is observed. Unauthorized and unmetered use is obscure in the data available in a quarterly billing cycle as the intervals in which they occur are often short term (eg. bypassed meters for irrigation, unauthorized use of hydrants,

etc.) as compared to the length of the billing cycle. These instances of unauthorized and unmetered use will be more easily identified in data sets from shorter interval billing.

- The Company's recently installed billing system has brought tighter controls on items such as estimated bills and zero read meters.
  - Rings have been installed on all hydrants to deter unauthorized use of hydrants and encourage the local populace to contact the Company if unauthorized use is observed.
  - The Company has met with local police chiefs to gain support in efforts to reduce unauthorized use of hydrants.
  - The Company purchased additional leak detection loggers to increase the area of the system that can be covered per week.
  - The Company began collection of detailed data such as main condition, soil condition, etc. for all leaks on mains for evaluation.
  - Break locations are being plotted using the Company's GIS system for analysis of locational trends.
3. Are these goals the results of an optimal water loss study? If so please provide a copy of the study. If not what are the bases for the goals?

**Response:**

The bases for the goals to reduce non-revenue water is a recent study performed for sister company UWNR which found that that 60% of the total system losses are real losses and 40% of the total losses are apparent. As the UWNR and UWNY systems are similar, this 60-40 split is also a good benchmark for UWNY. Recent observations of unauthorized and unmetered use in the system support this methodology.

4. What would it take to achieve non-revenue water of 10% of supply?

**Response:** Approximately 9% of the Company's non-revenue water is comprised of Unavoidable Annual Real Losses (UARL) which have been calculated using American Water Works Association (AWWA) and International Water Association (IWA) methodology. UARL's include water used

for firefighting, fire drills, hydrant maintenance, system flushing, flow tests, pressure tests, main chlorinations, operational use at sources of supply, instrumentation use, etc. This 9% is neglecting all apparent losses such as unauthorized consumption and customer metering inaccuracies. Thus, a reduction in non-revenue water to 10% would require apparent losses to be approximately 1% of water supply based on the average of the last ten years. This is an unrealistically low value for apparent losses. It accounts for less than half of the apparent losses associated with only customer metering inaccuracies and provides no allowance for other apparent losses such as unauthorized consumption, ie. theft from hydrants, illegal connections, bypasses around consumption meters, meter tampering, etc. The opportunity for bypasses around meters, particularly for irrigation lines, is significant given the placement of most customer meters in homes. This could be mitigated by placing meters in pits at the property boundary which would require an excavation into the public right-of-way to install a bypass around the meter pit. Placing meters in pits at the property boundary would also likely accelerate the time to fix leaks on services inside the property boundary that are the responsibility of the customer. Presently, most leaks on services inside the boundary of the property are before the customer meter. Therefore, the leakage is included as a real loss in the Company's non-revenue water calculation but the customer bears the responsibility for repair. If all meters were in pits at the property boundary, leaks on services inside the property boundary would be metered and billed which would incentivize an accelerated repair for the customer.

5. What would it take to achieve non-revenue water of 15% of supply?

**Response:** As described in Response No. 4, approximately 9% of the Company's non-revenue water is comprised of Unavoidable Annual Real Losses (UARL). Therefore, a reduction in non-revenue water to 15% would require apparent losses to be approximately 6% of water supply based on the average of the last ten years.

Using the methodology resulting from the study described in Response No. 3 and applying it to current non-revenue water, real and apparent losses are approximately 12% and

8% of water supply respectively. Based on the calculated UARL, the theoretical available reduction in real losses is 2% which would reduce non-revenue water to approximately 18%. However, it is not possible for actual real losses, also known as current annual real losses (CARL), to be reduced to the UARL. The UARL represents the technical low limit of leakage that could be achieved if all current best technology could be successfully applied. UARL is a key variable in the calculation of the Infrastructure Leakage Index (ILI). The ILI is the ratio of the CARL to the UARL. A perfect ILI would be 1.0 which is virtually unattainable as it would require actual real losses to be less than unavoidable real losses. AWWA considers the ILI a highly effective performance indicator for comparing (benchmarking) the performance of utilities in operational management of real losses. In 2011, the AWWA Water Loss Control Committee performed a water audit data collection initiative. Twenty-one (21) utilities across the United States and Canada provided data to AWWA via AWWA's water audit software. This initiative concluded that the average ILI for systems with 50,000 or more service connections was 3.62. UWNYS ILI as calculated with the AWWA water audit software for 2012 is 1.21. Therefore, UWNYS ILI is significantly lower than the average ILI for systems with 50,000 or more service connections. Additionally, an ILI of less than 2.0 is considered by AWWA and IWA standards to be excellent with no specific intervention for reduction of real losses required. This indicates that UWNYS is at or near the point of dimensioning returns on reduction of real losses and that UWNYS's efforts to reduce non-revenue water should be focused more on reduction of apparent losses than on real losses.

Assuming it was possible to reduce real losses to the UARL of 9%, a reduction of non-revenue water to 15% would require apparent losses to be reduced from 8% to 6%. Therefore, 2% is the theoretical minimum reduction of apparent losses required to reduce non-revenue water to 15%. As reduction in real losses to the UARL is not possible and UWNYS's ILI is below the average for systems with more than 50,000 customers, a reduction in non-revenue water to 15% requires an actual minimum reduction of apparent losses of approximately 5%. Therefore, UWNYS's efforts to reduce non-revenue water should be focused on apparent losses such as unauthorized and unmetered

consumption, ie. theft from hydrants, illegal connections, bypasses around consumption meters, meter tampering, etc.

6. Referring to the response to Pre-Filing Staff-77, please explain or provide the definitions of the categories, e.g., "Split", "Ringer", etc.

**Response:** The following are definitions of the categories:

- Split <16" - A longitudinal break on a main less than 16-inches in diameter.
  - Ringer <16" - A circumferential break on a main less than 16-inches in diameter.
  - Split >=16" - A longitudinal break on a main greater than or equal to 16-inches in diameter.
  - Ringer >=16" - A circumferential break on a main greater than or equal to 16-inches in diameter.
  - Joint Leak <16" - A leak at a joint between two pipes less than 16-inches in diameter.
  - Joing Leak >=16" - A leak at a joint between two pipes greater than or equal to 16-inches in diameter.
  - Service Repair (Short) - A repair of a service to a customer that is located on the same side of the street as the main.
  - Service Repair (Long) - A repair of a service to a customer that is located on the opposite side of the street as the main.
7. Please provide the monthly statistics in accordance with Pre-Filing Staff-77 starting with the first month following the test year through the date of this response along with monthly data through the balance of this proceeding.

**Response:** The monthly statistics starting with the first month following the test year (period ending March 31, 2013) are provided in the table below:

Type of Leak	Apr-13	May-13	Jun-13	Jul-13	Aug-13	Total
Split <16"	1		1	2	2	6
Ringer <16"	7	5	3	3	4	22
Split >=16"					1	1
Ringer >=16"	1					1
Joint Leak <16"		1	3		1	5
Joint Leak >=16"			1	1		2
Service Repair (Short)	1	2	4	2	1	10
Service Repair (Long)	1	1	2	1	1	6
<b>Total</b>	<b>11</b>	<b>9</b>	<b>14</b>	<b>9</b>	<b>10</b>	<b>53</b>

\*August data is for the first 27 days of the month.

8. Has the increase in the number of leaks recorded from 2008 to 2011 been the result of better detection methods? If so please explain the company's leak detection program. If not, to what does the company attribute the increase over the 2008 to 2011 timeframe.

**Response:**

In the initial submission of Pre-Filing STAFF-77 the data for "Ringers <16"" was transposed with the data for "Ringers >=16"". During analysis of the leak data for this interrogatory, an error was found. The revised data is in the following table.

Year	Split <16	Split >=16"	Ringer <16"	Ringer >=16"	Joint Leak <16"	Joint Leak >=16"	Service Repair Short	Service Repair Long	Total
2008	44	0	145	0	34	41	24	22	310
2009	51	0	211	0	20	9	33	19	343
2010	44	1	203	0	13	11	38	24	334
2011	55	1	198	1	15	27	32	11	340
2012	34	2	149	5	14	18	34	14	270
<b>Test Year</b>	<b>25</b>	<b>2</b>	<b>146</b>	<b>4</b>	<b>12</b>	<b>8</b>	<b>38</b>	<b>37</b>	<b>272</b>

The increase in the number of total leaks from 2008 - 2011 is comprised mostly of an increase in the number of ringers on mains less than 16-inches in diameter. Ringers are circumferential breaks that typically occur in the winter months when the soils surrounding the mains freeze and thaw. This freeze thaw cycle displaces the soils around the mains stressing them to failure. Ringers will also occur during prolonged periods of cold weather as the depth of the frost line increases which results in a progressive downward displacement of the ground above the

mains. The Company attributes the increase in ringers from 2008 - 2011 and the subsequent decrease in 2012 to weather and the freeze thaw cycle. Historically, approximately 50% of main breaks occur from December through February. The following observations were made (temperature data source wunderground.com):

- The average minimum temperature from December - February was generally lower in 2009 - 2011 than in 2008 and 2012.
- There were generally more days with temperatures below freezing from December - February in 2009 - 2011 than in 2008 and 2012.
- There was an average of 90 days with temperatures below freezing in 2009 - 2011 as compared to 68 in 2012. There was a significant decrease in the number of ringers in 2012.

9. Does the company foresee an increase, decrease or a continuation of the test year/2012 levels in the number of leaks likely to be reported in the rate year and the two years following?

**Response:** The Company's ILI is less than the average for systems with 50,000 or more customers and is indicative of a well maintained system. Therefore a significant decrease in the number of leaks likely to be reported in the test year and the two years following as compared to the test year/2012 levels is not probable. Leaks are the result of a number of factors such as temperature, the freeze thaw cycle of the ground surrounding the mains, ground conditions, system pressure, remaining useful life of the main, etc. External factors such as breaks caused by activities associated with capital projects by entities other than UWN Y in close proximity to UWN Y mains also contribute to the number of leaks. As an example, an expansive sewer installation is likely to result in main failures that are included in the total number of leaks. Therefore, the number of leaks in a well maintained system over any given period of time is a product of the conditions that exist during the period of time.

A main replacement program is also a critical component of leak management in the system. The Company evaluates its system on a continual basis and maintains a prioritized list of mains to be replaced. This prioritization includes factors such as age, failure rate, capacity,

criticality, soil conditions, water quality, etc. An  
ongoing main replacement program will reduce the  
susceptibility of the system to increased leakage.

## APPENDIX C

**Municipal Consortium**  
**INTERROGATORY/DOCUMENT REQUEST**

United Water New York

Request No.: MC-20

Requested By: Daniel P. Duthie, Esq.

Date of Request: October 10, 2013

Response Due: October 20, 2013

Witness: Thomas Lippai/Paula McEvoy

Subject: Production Costs - Follow-up to MC-16

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1. Please provide the monthly amounts of water purchased from the Palisades Interstate Park Commission and the associated payments on a monthly basis starting in 2010 to date.
2. Please provide the same information requested in MC-20(1) for water purchased by UWNY from any other sources.
3. Please provide a complete copy of Attachment Part 3 to the Response to MC-16 since it appears that the bottom of the page has been cut-off and only three pages of an apparently longer document was provided.
4. Please provide the latest estimated Haverstraw desalination production costs based on the current design and assume that no changes will be required by the DEC.
5. Please provide the estimated Haverstraw desalination production costs as presented to the DEC in the Draft Environmental Impact Statement.

Response:

1. The table below provides the monthly amounts purchased from the Palisades Interstate Park Commission and the associated payments. The Company is billed annually from September of the previous year to August of the current year rather than monthly. In addition to the amounts below, the Company makes an additional annual payment of \$10,000 for access to the water from Lake Tiorati.

<b>Gallons by Month</b>				
	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
December				
November				
October	1,074,000	759,000		
September	13,327,000	13,649,000	12,535,000	
August	25,014,000	23,837,000	27,155,000	28,595,000
July	41,439,000	34,362,000	33,236,000	41,559,000
June	36,363,000	13,325,000	33,716,000	28,209,000
May	13,995,000		8,655,000	8,659,000
April				
March				
February				
January				
<b>Total Gallons used at Letchworth</b>	<b>131,212,000</b>	<b>85,932,000</b>	<b>115,297,000</b>	<b>107,022,000</b>

<b>Total Billed for Letchworth</b>				
<b>Billing Period</b>	<b>Sept 2010 - Aug 2011</b>	<b>Sept 2011 - Aug 2012</b>	<b>Sept 2012 - Aug 2013</b>	
<b>Amount Billed</b>	<b>\$ 148,111</b>	<b>\$ 155,191</b>	<b>Invoice has not been received</b>	

2. The Company has not purchased water from other sources.
3. Please see MC-20 Attachment.
4. The instant case does not contain any request for costs associated with the Haverstraw Water Supply Project (HWSP) and since the Project is scheduled to be in service beyond the period of time for which new rates would be in effect, the Company feels that providing this information is irrelevant.
5. Please see response to Part 4 above.