STATE OF NEW YORK

BEFORE THE PUBLIC SERVICE COMMISSION

Proceeding on the Motion of the	**)**	
Commission as to the Rates,	**)**	**Case No. 04-W-1221**
Charges, Rules, and Regulations of	**)**	
United Water New Rochelle	**)**	

DIRECT TESTIMONY OF

PAUL CHERNICK

ON BEHALF OF

THE TOWN OF EASTCHESTER AND THE CITY OF NEW ROCHELLE

Resource Insight, Inc.

FEBRUARY 23, 2005

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I. Identification and Qualifications

Q: State your name, occupation and business address.

A: I am Paul L. Chernick. I am the president of Resource Insight, Inc., 5 Water Street, Arlington, Massachusetts 02476.

Q: Summarize your professional education and experience.

A: I received an SB degree from the Massachusetts Institute of Technology in June, 1974 from the Civil Engineering Department, and an SM degree from the Massachusetts Institute of Technology in February, 1978 in technology and policy. I have been elected to membership in the civil engineering honorary society Chi Epsilon, and the engineering honor society Tau Beta Pi, and to associate membership in the research honorary society Sigma Xi.

I was a utility analyst for the Massachusetts Attorney General for more than three years, and was involved in numerous aspects of utility rate design, costing, load forecasting, and the evaluation of power supply options. Since 1981, I have been a consultant in utility regulation and planning, first as a research associate at Analysis and Inference, after 1986 as president of PLC, Inc., and in my current position at Resource Insight. In these capacities, I have advised a variety of clients on utility matters. My work has considered, among other things, power supply planning, rate design, cost allocation, and utility industry restructuring. My resume is appended to this testimony as Exhibit____PLC-1.

Q: Have you testified previously in utility proceedings?

A: Yes. I have testified approximately two hundred times on utility issues before various regulatory, legislative, and judicial bodies, including the Massachusetts

Department of Public Utilities, Massachusetts Energy Facilities Siting Council, Vermont Public Service Board, Maine Public Utilities Commission, Rhode Island Public Utilities Commission, Texas Public Utilities Commission, New Mexico Public Service Commission, District of Columbia Public Service Commission, Michigan Public Service Commission, Minnesota Public Utilities Commission, Public Utilities Commission of Ohio, South Carolina Public Service Commission, North Carolina Utilities Commission, Florida Public Service Commission, Pennsylvania Public Utilities Commission, New York Public Service Commission, Arizona Commerce Commission, New Orleans City Council, Federal Energy Regulatory Commission, and the Atomic Safety and Licensing Board of the U.S. Nuclear Regulatory Commission. A detailed list of my previous testimony is contained in my resume.

Q: Have you testified previously before this Commission?

A: Yes. I testified in Case No. 99-W-0958, the previous United Water New Rochelle rate case. I have testified in the following non-water cases:

- Case No. 96-E-0897, on the electric restructuring plan of the Consolidated Edison Company of New York, Inc. ("Con Edison").
- Case No. 99-S-1621, on Con Edison's steam rates.
- Case No. 00-E-1208, on the allocation of generation costs between New York City and Westchester County.
- Cases No. 03-G-1671 on Con Edison's gas rates and No. 03-S-1671 on Con Edison's steam rates.
- Case No. 04-E-0572 on Con Edison's electric rates.

Q: Have you testified in any cases involving a water utility?

A: Yes. In addition to the previous United Water rate case, I testified in Rhode Island PUC Docket 1900 on water conservation potential and cost-effectiveness.

II. Introduction and Summary

Q: What is the purpose of your testimony?

A: I address a number of issues raised by the United Water New Rochelle (United Water, UWNR or the Company) in its application for a series of rate increases, and for special ratemaking allowing further rate increases for "extraordinarily large expected capital expenditures" (Company Witness Pauline Ahern (2004) at 13). The issues can be grouped into the following four broad categories:

- United Water's proposed Delaware Interconnection Project (DIP), particularly United Water's failure to justify the capacity proposed for the project and to secure least-cost financing.
- Rate design, including the recovery of hydrant costs and United Water's use of declining-block rates.
- United Water's plans for replacement of its water mains and associated cost recovery.
- The amount of lost and unaccounted-for water on United Water's system.

Q: On what documents did you rely in writing this testimony?

A: I used the testimony, exhibits and discovery responses (which I refer to as "IR" followed by the requesting party, set, and question number) of the Company in the present case, as well as testimony, exhibits and discovery responses (including several attached reports) in the preceding United Water rate proceeding, Case 99-W-0958. The responses to discovery from NRWC (the New Rochelle Water Coalition) and the testimony I cite from Company Witnesses Ronald. Walsh and Laurence Murphy are all from Case 99-W-0958. In addition, I relied on various documents from the New York City Department of Environmental Protection, Westchester Joint Water Works, and other entities. A

bibliography of testimony and documents (other than discovery and orders) that I cite in my testimony is included as Exhibit____PLC-2

A. Conclusions and Recommendations Regarding the Delaware Interconnection Project

Q: Please summarize your conclusions regarding the need for and sizing of the DIP.

A: United Water has failed to comply with the DIP-related requirements of the Commission's order in Case No. 99-W-0948. In that proceeding, the Commission announced that it would "delay a final decision on implementation of [a cost-recovery] mechanism" until five conditions are met (Order of August 30, 2000 at 47). The requirements were as follows:

1. The Commission be satisfied that "the DIP is optimally sized," since the Commission was concerned that the Company had not adequately supported "its current plans for a 35 MGD DIP" or shown that the size of the DIP cannot be "reasonably reduced" (Order at 45–46). United Water has done nothing in this docket to demonstrate that the DIP is optimally sized. Indeed, United Water now acknowledges that the DIP would have a capacity of 50 MGD, 43% above the 35 MGD capacity that the Commission found not to have been justified. The DIP would provide about three times the capacity provided from the Croton Aqueduct supply that may be lost.
2. "The City give approval for the interconnection to Shaft 22." United Water has not provided any evidence that it has such approval.

3. A final decision be "made on who will build and finance the project," so that the Commission can determine that the investment would be made at the lowest cost.[1]

4. "Ratepayers can be accurately informed of the timing and bill impacts of any DIP surcharges." The Company has not provided a plan for accurately informing ratepayers of the bill impacts, and has refused to produce any estimate of the bill impacts.

5. "A reasonable customer outreach and education plan concerning any DIP surcharge is prepared." The Company has not provided any such plan.

The Commission in its order (at 45) also said it was "extremely concerned about...authorizing implementation of the DIP surcharge mechanism at this time without knowing if the project will go forward or the exact amount and precise timing of the surcharges and their bill impacts." It is still not clear that New York City will site its Croton filtration system downstream from the United Water's Croton pumping station; if New York City filters Croton upstream, United Water can continue using Croton and the rationale for the DIP disappears. Even if United Water does need to replace its Croton supply, the DIP has not yet been fully approved by New York City, Yonkers, and Eastchester. It is still premature to implement a cost-recovery mechanism when the primary issues concerning the DIP have not yet been resolved.

Considering the large investment for which the Company is requesting cost recovery, with large bill impacts, it is essential that United Water provide a clear and consistent rationale for the DIP and for its capacity. To date, the Company has not met that requirement.

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[1]This condition was combined with the preceding one in the Commission's list. I have separated it for clarity.

Finally, United Water has not fully accounted for the low-cost financing available for the DIP.

Hence, the Commission should reject cost recovery for the DIP for the same reasons it did so in the previous proceeding. United Water has not resolved the issues in that case, and in some cases has made no effort to do so.

Q: From the record as it stands today, can the Commission determine whether the DIP is needed and, if so, at what capacity?

A: No. United Water has continued to provide inconsistent and misleading information regarding the DIP to the Commission and other parties, including:

- In 99-W-0948, United Water portrayed the DIP as being required by the loss of Croton. United Water now claims it needs the DIP regardless of the availability of Croton.
- In 99-W-0948, United Water stated that it preferred the upstream siting of Croton filtration to the DIP. Yet the Company now reveals that it has made no efforts to influence the siting of Croton treatment facility.
- United Water has represented the same DIP configuration as having a capacity of 35, 42, and 50 MGD, depending on the context.

If the Croton filtration facility is eventually located upstream of United Water, no new supply will be needed. Although some new supply would be needed if New York City constructs the Croton filtration system in the Bronx, that supply would be much less than the 50 MGD of the DIP. On the basis of the record as it stands today, the Commission cannot determine how much would be needed, or whether the least-cost solution is a scaled-down DIP or some other option.

Q: Are there other problems with United Water's cost-recovery proposal for the DIP?

A: Yes. United Water's proposal would allow it to charge its general rate of return for the DIP, even if, as seems likely, the Company is able to finance the facility with lower-cost revolving funds. The mechanism should be redesigned to recover only the costs of least-cost financing. Also, any cost recovery should be subject to reconciliation to reflect any findings of imprudence.

While United Water does not currently sell water at wholesale (IR Eastchester 10-2), the additional capacity of even a scaled-down DIP would allow the Company to sell to other distributors. If ratepayers pay for the additional capacity, any profits from off-system water sales should pass through to ratepayers, either through the purchased-water adjustment or through a separate rate adjustment clause. Alternatively, ratepayers should not be required to pay for capacity that is not required to serve retail load.

Q: Please summarize your recommendations regarding the Company's request for cost-recovery for the DIP.

A: I recommend that the Commission again reject United Water's request for a cost-recovery mechanism. Instead, the Commission should open another docket to resolve the following issues:

- Whether the option of siting the Croton filtration facility upstream of United Water remains viable, and (1) if so, how best to achieve that out–come, or (2) if not, an appropriate penalty for United Water's imprudence for failing to make any effort to influence siting of the Croton filtration facility.
- What sizing of a new supply source is appropriate if Croton is unavailable, at current demand levels.

- How the sizing of any required new source can be reduced by conservation.
- Whether United Water has the required approvals from New York City, Yonkers, and Eastchester for construction of the DIP, or any modified DIP or other new supply source.
- How large the rate impacts will be from the DIP or any other new supply source, given least-cost financing and specific cost-recovery mechanisms.
- Whether United Water can fulfill the customer-related conditions of the Order in 99-W-0958, including information, outreach, and education regarding the rate surcharge.
- How the cost-recovery mechanism for any new supply sources should be revised to ensure that the Company can only recover the cost of prudently-incurred expenditures with the lowest-feasible-cost financing, net of wholesale sales.

Since cost-recovery for the DIP would not be in base rates for this rate period in any case, moving this issue into another proceeding should not create any special problems.

B. Other Issues

Q: Please summarize your conclusions and recommendations regarding the Company's rate design proposals.

A: I find as follows:

- The Company's proposed charges to municipalities for public fire-protection service are not cost-based or equitable.
- Hydrants are required for system operation and maintenance and should not be assigned to municipalities for fire protection.

- Recovery of United Water's hydrant costs through user rates, rather than municipal property taxes, better matches the cost recovery to the recipients of fire-protection service, to the extent that fire-protection service contributes to hydrant costs.
- The Company's declining-block-rate structure does not reflect the capacity and water-purchase costs incurred due to incremental usage, particularly in the summer months.

I therefore recommend that the Commission take the following actions:

- Direct United Water to recover through basic water rates those revenues now raised through hydrant charges to the municipalities.
- If hydrant charges are retained, reject any increase to the hydrant charges unless it can be cost justified.
- If hydrant charges are retained, avoid any increase in those charges before the beginning of the municipalities' next fiscal year, to allow for appropriate budgeting and setting of tax rates.
- Add any rate increase allowed in this proceeding entirely to the tail block of each rate, until that rate reaches the rate for the inner blocks. Rates should be re-designed with goal of gradually eliminating the declining block rate structure.

Q: What are your conclusions and recommendations regarding the mains-renewal program?

A: The surcharge that supports United Water's mains-renewal program should be modified in five respects.

- The current program may not distinguish clearly between routine mains investments and the replacement program. I recommend that the

Commission limit the mains-renewal surcharge to investment in excess of routine levels of mains replacement.

- The funds recovered from the surcharge should be subject to reconciliation in each rate case for audited expenditures, for prudence and for financing costs.
- The timing of the mains-renewal program should be adjusted to minimize the rate impacts during the period that the costs of replacement water supply (e.g., the DIP) will be added to customer rates.
- The mains-renewal surcharge should only apply to the extent that United Water would otherwise earn less than its allowed return.
- The surcharge should be restated to flow through to ratepayers the actual cost of financing for the program, which may be less than the embedded return.

Q: What are your conclusions and recommendations regarding United Water's lost and unaccounted-for water?

A: United Water's percentage of received water that is not sold is unusually large. The Company has proposed an expensive program to reduce that percentage, and has sometimes claimed that the mains-replacement program will also contribute to reducing losses, but offers no assurance that the expenditures proposed for reducing its percentage of lost and unaccounted-for water will be cost effective. The Commission should maintain pressure on the Company to achieve real cost-effective reductions in lost and unaccounted-for water. Among other things, the Commission should

- put United Water on notice that the next rate case will review the prudence of its spending to reduce lost and unaccounted-for water, including any revenues allowed in this case to cover future spending;

- require United Water to demonstrate that it has maximized the net benefit of its leak-detection program, including its decision to limit its leak-detection staff to a single individual;
- gradually reduce United Water's allowance for lost and unaccounted-for water.

Q: How is the remainder of your testimony organized?

A: The next section reviews the Company's proposal to build the California Road Pumping Station and its efforts to minimize the costs of financing its supply project. Section IV discusses the implementation and cost recovery of United Water's mains-renewal program. Section V addresses the rate design issues. Section VI deals with lost and unaccounted-for water.

III. The Delaware Interconnection Project

A. Summary of United Water's Situation and Proposal

Q: Please briefly describe the Company's proposed Delaware Interconnection Project.

A: The Delaware Interconnection Project consists of a new 50 MGD connection to the Delaware Aqueduct at Shaft #22, and a new 7,660-square-foot, five-pump, 43-MGD pumping station with an emergency capacity of 50 MGD (Company Witness Donald Distante 2004 at 9).

The proposed California Road Pump Station, and the associated Delaware Aqueduct supply, is currently estimated to cost $42,974,638 (including AFUDC) (Distante 2004 at 10). This capital project alone (not including mains-renewal expenditures) would increase United Water's rate base ($53,821,540 as of

6/30/04) by 80% (Company Witness Kevin Doherty 2004 Exhibit KHD-1 at Schedule 1).

Q: Has the Company made any changes in design or capacity of the DIP since the Commission's review in Case No. 99-W-0948?

A: Not according to the Company. Mr. Distante (2004) at 11 states that the "actual [43 MGD] station itself on California is identical to the one described in Mr. Murphy's testimony in Case No. 99-W-0948 as is the [50 MGD] Shaft 22 interconnection." However, it should be noted that Mr. Murphy testified in his rebuttal that the capacity at California Road had been reduced from 50 to 35 MGD (discussed more fully in Exhibit____PLC-3 of this testimony).

Q: Has United Water addressed the Commission's finding that the Company has failed to demonstrate that the DIP is optimally sized?

A: No. The Company's filing does not address the sizing of the DIP. In fact, in response to discovery, the Company states that "There has been no further analysis on reduction of size since the initial filing in 1999" and that it has not evaluated reductions in the capacity of the Delaware Pump Station since its initial filing in Case 99-W-0948 because "The DPS is optimally sized." (IR Eastchester 5-7(a) and 5-7(b)).

Q: What justification does the Company give for going ahead with the DIP without further review of its sizing?

A: First, the Company takes the position that its 1992 study (Hazen and Sawyer 1992) of alternatives to replace the Croton supply demonstrates that the DIP is the least-cost, feasible option (Distante 2004 at 5). However, the 1992 Study does not actually include an analysis of need; it simply assumes (at 2-2) that the DIP had to have a capacity of 50 MGD. Second, with the NYC DEP's administrative determination to site the Croton treatment facility downstream of United

Water, the Company argues that it has no choice but to go ahead with the construction of the DIP in preparation for disconnecting from the Croton system as required by its Stipulation with the NYS DOH. Third, the Company suggests that the need for the DIP is increased by a recent development: the planned outage of the Catskill Aqueduct for maintenance for up to three winter seasons in the years 2007/08–2010/11.[2]

Q: Has the siting of the Croton filtration plant been determined?

A: New York City has decided which site it prefers, but I understand that the decision is currently under appeal.

Q: If the Croton filtration plant were located upstream of United Water, how much more would the Company pay for the use of filtered water from that facility?

A: That is not clear. United Water does not even know whether it would have to pay for a share of the Croton plant, regardless of whether it takes Croton water (IR Eastchester 10-3). Hence, the incremental cost of this option for United Water may be essentially zero.

Q: What has United Water done to encourage the siting of the Croton filtration plant upstream from its facilities?

A: Nothing (IRs Eastchester 5-24, 5-25). This inaction is clearly imprudent.

[2]Mr. Distante (2004 at 11) reports that this outage is planned "for an extended period of time beginning in late 2006 to early 2007." The actual planned schedule appears a year later and, since it will affect supply in only the winter months, it will be less disruptive than Mr. Distante suggests.

Q: What accounts for the apparent inconsistencies in the capacity of the DIP, as described by United Water?

A: "Capacity" is usually understood to mean the maximum delivery capability, which in the case of the Delaware interconnection and pumping station would be 50 MGD. But when the Company refers to supply capacities, it does not always mean maximum delivery capability. Sometimes, it refers to the maximum pumping capability with one pump left in reserve. Sometimes United Water conflates supply capacity with measures of the customer demand that the system is designed to serve. For example, Company may use as "capacity" the maximum hourly retail load the supply could ever meet, that is, the 43 MGD peak hourly load of the New Rochelle division (Distante 2004 at 8–9; IR Eastchester 5-5a). Similarly, when Mr. Murphy asserted that the capacity of the interconnection had been reduced to 34 MGD, he may have been referring to his belief that the system's "Average day [was] approximately 34 MGD" (IR Eastchester 5-2d).[3]

For purposes of evaluating the sizing of the DIP, 50 MGD (or about 2.1 million gallons per hour) is the maximum supply capability of the interconnection and the pumping station, and therefore the appropriate measure of the capacity of the DIP.

Q: Why is the measure of capacity so important?

A: Evaluating the reasonableness of the size of a project requires understanding the capacity of the sources available to meet customers' water demands. The Company's contradictory positions on the capacity of the DIP may have confused the Commission, resulting in the reference in the Order in 99-W-0938

[3]The discovery response is incorrect. United Water reports that the average day load for the system is 20 MGD (Distante 2004 at Exh. DFD-3).

to a proposed capacity of 35 MGD at California Road (which the Commission found to be inadequately supported).

Q: Please briefly describe the Company's current water supply and demand situation.

A: As in Case No. 99-W-0948, each tabulation of the Company's existing and proposed resources in the instant proceeding is different. United Water has not even provided a consistent statement of the capacity of the DIP. In describing the Company's current water supply and demand situation, I use the most reliable values I have been able to identify, but it is often difficult to determine the Company's precise position on load and capacity issues.

The Company designs its system to meet a peak hour demand of 50 million gallons per day. United Water has a peak day load of 35 MGD and a peak hour of 47 MGD (Company Witness Michael Pointing 2004 at 4). The system apparently reached a peak of 49.4 MGD in 1991: the available data indicate that the peak has not been that high since, and the Company does not expect much growth in the future.[4]

United Water has relied on two principal sources of water supply: the Catskill Aqueduct supply (with a capacity of 31 MGD) and the Croton Aqueduct supply (with a capacity of 17.5 MGD). The Company also has a 13-MGD secondary non-firm supply via a connection through Westchester Joint Water Works'

[4]The Company's peak hour data may not be completely reliable. The peak hour demand of 49.4 MGD is based partly on actual measurements and partly on estimated flows. According to the demand data provided in response to IR NRWC 4-35 (in Case No. 99-W-0948), actual peak hour demand in the period 1994–1998 did not reach 44 MGD. However, according to the Company's response to IR Eastchester 7-2b, the Company is unable to provide any peak hour data in the period 1990-2004: "Hourly data for this time period are not readily available and would be overly burdensome to prepare."

facilities to the Delaware Aqueduct, for a total of 61.5 MGD.[5] The Company currently has a pumping capacity of about 50 MGD (Pointing 2004 at 3).[6] Since United Water also has about 8 million gallons of storage, it is capable of meeting far higher hourly loads. (Pointing 2004 at 4)

Q: What future changes in supply are anticipated?

A: The Company reports two major changes in future supply that will affect need for capacity. First, New York City has decided, subject to appeal, to site the Croton filtration facility, which is needed in order to comply with the Surface-Water-Treatment Rule, downstream of United Water; the DEP Commissioner approved the Mosholu Golf Course in the Bronx as the plant site.[7] Assuming that decision holds and the Company has no access to filtered water from Croton, it must replace its 17.5 MGD Croton supply.

Second, the NYC DEP currently plans to take Catskill off-line for construction and maintenance in the off-peak months for two or possibly three years in

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[5]According Murphy (2000 at 5), the Catskill supply has a capacity of 31 MGD and the system has a total capacity of 61.5 MGD. The capacity figure for the Catskill supply provided in Company testimony, reports and information responses does vary somewhat between 27 and 32 MGD. (E.g., 27 MGD according to Murphy (1999 at 5), 30 MGD according to Mr. Distante (2004) at 4, and 32 MGD according to Hazen and Sawyer 1992 at 2-2).

[6]It is unclear why the Company's water supply capacity would exceed its pumping capacity. According to Company Witness Walsh (1999 at 3), the system pumping capacity is 60 MGD, a figure more in line with the system's water resources. In response to IRs Eastchester 8-1 and 8-2, the Company refused to provide detailed data on the number and capacity of the pumps in each pumping station and the total pumping capacity of each station, data which would clarify apparent inconsistencies in the Company's descriptions of its system. The Company asserted, "Provision of the additional detail requested here is unduly burdensome, and irrelevant in isolation without considering the operation of the entire system."

[7]"Statement of Findings for the Siting of the Croton Water Treatment Plant," CEQR Number 98DEP027, July 16, 2004.

the period 2007/08 through 2010/11 (IR Eastchester 5-12 Attachment). Since it will affect supply in only the winter months, the loss of Catskill is less disruptive than the Company suggests.

Q: Has the Company's supply situation changed in any other way since the Commission last reviewed the DIP proposal in Case No. 99-W-0948?

A: Yes. The summer supply situation has actually improved since the Commission last reviewed the proposal. The Company has determined that it will keep the Metz Reservoir on-line and then replace it with a covered storage facility, rather than retiring it as originally planned. The Catskill maintenance outage will not affect its availability in the summer.

Q: What would the Company's supply position be on the summer peak, were the DIP in service?

A: The DIP would result in a net increase in firm supply capacity in the summer (net of the loss of the 17.5 MGD Croton supply) of 32.5 MGD, from 48.5 MGD (excluding Westchester Joint Water Works, a non-firm resource) to 81 MGD.[8] It appears that pumping capacity increases even more, by 45 MGD (that is, the 50 MGD maximum pumping capacity of the DIP minus the 5 MGD of pumping capacity at the existing California Road pumping station).

[8]Croton could still be available as an "emergency" supply (a term United Water does not define) (IR Eastchester 8-9, Attachment BEA-9 at 3)), so the total capacity of the United Water system would be about 100 MGD. In addition, the Company has credited the WJWW supply with some capacity value, 7.5 MGD (IR NRWC 4-6). In IR NRWC 4-6, the Company indicated that the WJWW interconnection has a capacity value about 5.5 MGD less than the full 13 MGD of the physical connection, suggesting a capacity of 7.5 MGD.

B. Justification for the Proposed Delaware Interconnection Project

Q: What has been the Company's rationale for seeking a new 50 MGD Delaware supply?

A: It is not clear how the Company arrived at that decision. The original rationale for a new Delaware Aqueduct connection was driven by the prospect of Croton water becoming unavailable to United Water. Now the Company appears to claim a need for 50-MGD supply no matter what happens with Croton. Changes in the availability of supplies seem to have no effect on the Company's perceived need for a 50 MGD supply.

United Water did not originally seek a new supply. According to Company Witness Walsh (1999 at 17), construction of the DIP was driven by the prospect that the Croton filtration plant would be sited in the Bronx:

> We knew that the odds were against the City building north of us. However, we kept open the possibility that we would be able to stay on the Croton, and save millions of dollars, *as our preferred alternative*. (emphasis added)

Even assuming that the Croton treatment facility would be located in the Bronx, United Water did not limit the alternatives to a new 50 MGD supply. In Hazen and Sawyer (2002), United Water considered, for example, constructing a filtration facility for the 17.5-MGD Croton supply to be an alternative for "supplying the Company's demands without using the Croton Aqueduct as an unfiltered source." (See also Murphy 1999 at 5.) If this option had been cost-effective and feasible, the Company believed apparently that its existing supplies would be adequate.

In 1991, the Company was considering the 35-MGD Delaware Aqueduct connection (Murphy and Mackey 1991 at 9). According to Murphy (1999 at 4), United Water decided that if Croton was replaced rather than cleaned up, the

Company would also need to replace the 13 MGD WJWW supply, because "[t]he reliability of supply from WJWW cannot be assured during peak demands when it is most needed" (see also IR Eastchester 5-2b). Mr. Murphy described the WJWW supply as "unreliable." He did not explain why WJWW was an adequate back-up supply if the Company could keep Croton, but inadequate if it had to replace Croton with a similarly-sized firm supply. In any case, the Company added 17.5 MGD and 13 MGD, and decided it needed 35 MGD to replace the WJWW as well as the Croton supplies.

By 1992, United Water had decided that a new 50 MGD supply was needed, although the Company has not given a consistent explanation for that decision.

Q: Why has United Water decided to size the DIP at 50 MGD?

A: The Company has taken two different approaches to justifying a 50 MGD DIP, neither of which is valid. According to the first approach, the connection was increased from 35 MGD to 50 MGD when United Water decided that firm back-up for the Catskill source was also needed, because water quality problems might result in Catskill being unavailable at times during the colder winter months. (Murphy 1999 at 5; IR Eastchester 5-2). Later on, the Company determined that Catskill was a reliable year-round supply after all, but it did not reduce the planned supply and pumping capacity additions back to 35 MGD.[9]

At some point, the Company decided that regardless of the availability of its existing sources, it needed a new source large enough to meet a peak *hourly* demand of 50 MGD.

[9]In its response to IR NRWC 4-6, the Company arrived at the 50 MGD somewhat differently, as the sum of (1) the loss of the 17.5 MGD Croton supply; (2) the loss of the 27 MGD Catskill supply and (3) an additional 5.5 MGD "to give partial recognition to the 13.0 MGD connection with WJWW which has been found in the past not to be a totally reliable source of supply."

> As there is little storage in the existing system, each of the alternatives has to meet the peak hour demand of 50 MGD for the entire system. (Hazen and Sawyer 1992 at unnumbered Executive Summary)

Originally, United Water believed it was sufficient to design its system to meet its maximum *day* demand of 35 MGD, but by 1992 the Company apparently decided that it had to retire the Metz Reservoir (4.5 MGD), thus abandoning over half the system's storage capacity. United Water stated that with the construction of the DIP, the Metz reservoir would be "hydraulically isolated from the system," "[a]s a practical matter,…simply unusable" (Murphy 2000 at 20) and a source of "continuous and catastrophic overflow" (IR NRWC 4-6 in Case No. 99-W-0948). Now, the Company has decided not to replace the Metz Reservoir after all, realizing that removing more than 50% of system storage is not "prudent…without a suitable replacement" (Distante 2004 at 12).[10]

To justify a 50-MGD DIP, United Water also had to argue that it not only needs enough non-storage resources in its system to meet the hourly peak, but that it also needs a *single* source large enough to meet that system, if no other resource, not even the local storage, were available.

> [In addition to replacing Croton], developing this source at 50 MGD will allow the Delaware Aqueduct to become the primary source of supply, capable of meeting peak demands, with the Catskill Aqueduct as a back-up supply. At present, NRWC cannot adequately meet peak demands and has insufficient back-up supplies to meet demands if New York City were to take one aqueduct out of service for an extended period of time. (Hazen and Sawyer 1992 at unnumbered Executive Summary)

[10]Oddly, United Water continues to insist that the DIP meet the peak hour load, even though Metz and other storage facilities are available.

Q: Has the Company demonstrated the need for some additional capacity, if not 50 MGD, from a new Delaware supply and through a new pumping station at California Road?

A: No. If the Croton filtration facility is built upstream, rather than in the Bronx, no new source is required. That issue remains open. Even if the Croton filtration is built in the Bronx, it is not clear that the new dedicated Delaware connection and associated pumping is least-cost, necessary, or even feasible.

The Company may be able to purchase the amount of water it needs to supplement Catskill in the summer (and replace it in the winter during maintenance) for less than the cost of a resized DIP. Given the substantial increase in the cost of the DIP since United Water last compared alternatives, this option should be re-examined.

Even if the dedicated Delaware connection is needed, the Company should examine the feasibility of using the existing pumping capacity and avoiding or reducing the cost of the California Road pumping station. United Water's previous comparisons of pumping alternatives have generally assumed the need for 50 MGD of additional capacity.

Finally, United Water has not yet obtained the necessary approval from the New York City DEP to connect to the Delaware Aqueduct at Shaft 22.

Q: How do the anticipated maintenance outages of the Catskill Aqueduct affect the need for the DIP?

A: The loss of Catskill has only a limited effect on the need for new resources. The Catskill outages will be limited to the winter season (September–May), during no more than three years. The maximum daily demand in the winter is less than 25 MGD, compared to a summer maximum daily demand of more than 33 MGD (IR NRWC 4-35, Exhibit DFD-3).

Of the winter load, it appears that WJWW could supply about 13 MGD. The Company has not provided any evidence that its supply from WJWW has been or would be curtailed in the winter. The Company has stated only that "[t]he reliability of supply from WJWW cannot be assured during *peak demands* when it is most needed" (Murphy 1999 at 4, emphasis added).[11] Since WJWW's retail load must be lower in the winter than the summer, its ability to make wholesale sales should be greater in the winter.

Building a permanent 50-MGD baseload supply would be a costly solution to a short-term 12-MGD winter deficiency. Even if alternatives would involve expenses that would not be economic for long-term supply, they might be cost-effective for resolving this short-term problem. The New York City DEP has offered to assist suppliers with acquiring short-term supplies during aqueduct outages (NYC DEP 2004a at 19). The DEP has also stated that, if both Croton and the upstream portion of the Catskill Aqueduct are unavailable to United Water, DEP can backfeed Delaware water up the lower portion of the Catskill Aqueduct from Hillview Reservoir (NYC DEP 2004b at 10).[12] Hence, the New York City DEP may be able to maintain service to United Water during the work on the Catskill Aqueduct by appropriate scheduling, at little or no incremental cost to United Water.

The Department of Health may also permit United Water to use unfiltered Croton water when Catskill is temporarily out of service, since that

[11]Even on the summer peak, the Company has assumed that a WJWW supply of 7.5 MGD would be available (IR NRWC 4-6 in Case No. 99-W-0948).

[12]If the Aqueduct is unavailable due to work below Central Avenue Pumping Station, United Water would not be affected.

circumstance may be treated as an emergency, just like a loss of the Delaware connection. (IR Eastchester 8-9 Attachment BEA-9 at 3)

Even if neither back-fed Delaware water nor Croton water is available, alternative sources may be available to meet that need, in particular from other suppliers (beyond the existing WJWW connections) who have access to the Delaware Aqueduct.

Q: Has the Company investigated any alternatives to address the Catskill outage in the event that it occurs before the DIP is completed?

A: No. Despite the importance of the Catskill supply to its customers and the request by the NYC DEP in a letter dated 1/3/05 that it provide "a written description of your planned method and operation for supplying water during the Catskill Aqueduct shutdowns," the Company has not investigated alternative ways of meeting its winter load at those times. It is unable to identify any alternative supplies. According to its response to IR Eastchester 5-6,

> No other alternatives [other than the DIP] have been completely evaluated to address the shutting down of the Catskill Aqueduct.

It does not even know what its winter loads have been in the past five years. According to its response to IR Eastchester 7-3b,

> Monthly data for the time period requested, like the hourly data, [are] not readily available and [are] burdensome to gather and organize.

Q: Has the Company provided adequate support for a single water source that is by itself large enough to supply the peak hour demand of the entire system?

A: No. The Company's planning process has been arbitrary and inconsistent. In particular,

- The Company has not articulated a clear and consistent explanation of its reliability standard.

- The Delaware Aqueduct is no more a certain resource than is Catskill. United Water is fully aware that the Delaware Aqueduct will also be taken off-line for maintenance, leaving the Company with 31 MGD of Catskill supply. If United Water's arguments for sizing the DIP are applied to the Delaware outage, the Company would also need a 50 MGD Catskill connection.
- New York City will not schedule long-term outage of any of its aqueducts in peak times for New York City demands, as well as those of United Water and other users.
- The Company has provided no economic analysis of the costs and reliability benefits of a 50 MGD supply and pumping capacity addition, compared to a simple replacement of Croton.
- The Company has not provided adequate support for its claim that the WJWW is so "unreliable" that it has no value as a back-up source.

Q: What is your understanding of the Company's approach to reliability planning?

A: At best, the Company's reliability criterion is variable and contradictory. At worst, the reliability standard is periodically reformulated to support a pre-determined supply plan. In seeking the 50 MGD Delaware Aqueduct capacity addition, the Company claims to need a single baseload supply source capable of meeting a peak hour demand of 50 MGD, assuming none of its other sources (Catskill, the Croton and WJWW emergency supplies, and the storage facilities) exist or are available.

In 1991, however, when the Company had decided to seek a smaller 35 MGD supply to replace Croton, it believed that the system had sufficient capacity if it could meet maximum day demand (not the higher peak hour demand) with

any one supply source unavailable.[13] Under this first-contingency standard, United Water found that—absent the problems with Croton water quality—its existing supplies were sufficient even given the restrictions on the availability of WJWW:

> The present capability of utilizing the three (3) aqueducts affords the Company the ability to maintain an adequate source of supply in the event of a planned or emergency shutdown of *one* of the aqueducts. (Murphy and Mackey 1991 at 1-4, emphasis added)

On behalf of United Water, Mr. Murphy (2000 at 17) asserted that the Company was sizing the DIP to meet "average day" demand (which he incorrectly identifies as 35 MGD), rather than peak day, with one aqueduct out of operation.

The original purpose of a new supply was to replace Croton to comply with the Surface-Water-Treatment Rule. Now, the Company would regard its current system to be inadequate if a filtered Croton supply were available (IR NRWC 4-27). The Company has not provided any justification for this reversal of position.

Q: What should an economic analysis of reliability consider?

A: To determine the appropriate reliability level of a system, the utility should compare the costs and reliability benefits of alternative supplies, varying capacity levels, number of supplies, and types of supply, and should examine the tradeoff between baseload water supplies and peaking storage facilities. At the very least, a reliability analysis must be able to answer the following questions:

- What levels of demand should the system be sized to accommodate?

[13]The reliability criterion put forth by Murphy and Mackey (1991) appears to recognize that baseload supplies should be used to meet peak *day* demands, while storage facilities should be used to meet *hourly* fluctuations in demand.

- How do those demands fluctuate by season, and how do those fluctuations correlate with seasonal differences in resources?
- What contingencies (e.g., combinations of Aqueduct and pumping-station outages) should the system be able to accommodate, with what levels of emergency purchases and curtailments?
- What is the incremental cost of increasing reliability, as in increasing the size of the new supply from 35 MGD to 50 MGD?
- How much reliability is gained for that increase in costs, as measured, for example, by the interval between requests for curtailment of irrigation?
- What reliability level is sufficient and economic?

Q: Has United Water provided any industry or regulatory standard of reliability that would require 50 MGD from the DIP?

A: No. The only external reliability standard that United Water has provided is that "NYS DOH requires that water purveyors must maintain a minimum of two sources and that pumping systems must have redundancy." (Murphy 2000 at 17–18). That standard could be met with a much smaller DIP, or even with existing Catskill and WJWW resources.

Q: Has the Company done any analysis of the incremental costs and reliability benefits of the 50 MGD supply?

A: No. In fact, the Company appears to take the position that it is not under any obligation to consider smaller alternatives because it knows that it needs 50 MGD. Before the Commission issued its Order in Case No. 99-W-0948, the Company stated that it had not analyzed the cost of a scaled-back 20-MGD Delaware Aqueduct Pump Station and "could not have pursued a smaller source of supply." (Case No. 99-W-0948 IRs NRWC 4-34, 4-13). Even after the Commission found that United Water had not adequately supported the sizing of the

DIP, the Company made no effort to examine alternatives. (IRs Eastchester 5-6, 5-7).

Q: You mentioned that the Company failed to provide convincing evidence that the WJWW supply is not useful as a back-up supply. Please elaborate.

A: According to United Water, the WJWW supply requires replacement because it is "not reliable" (Murphy 1999 at 4). While a letter from WJWW indicates that this supply may be limited at some times, when the supplier requires it (IR NRWC 4-10 in Case No. 99-W-0948), the Company has not provided any information about the frequency of the events for which WJWW would need to recall the supply. United Water has not discussed how often these restrictions are in effect, how much of the supply they affect, how long they last, when they occur, or how often the Company has been unable to rely on WJWW to serve its peak demands.

Indeed, United Water itself apparently considers WJWW to have capacity value of about 7.5 MGD back-up supply (IR NRWC 4-6). Even were the existing California Road Pumping Station retired to make way for the DIP, the Company plans to retain access to WJWW supplies through the 8-MGD Troublesome Brook Station.[14] If WJWW has value as a back-up supply (such as when Catskill is unavailable), United Water should reflect that value in sizing the new California Road station.

Q: Is the Company correct when it asserts that it must plan so that it has year-round capability to meet the annual peak?

A: No. The Company need not size the DIP so that it can meet the annual peak day or peak hour even in the winter. Summer use is much greater than winter use,

[14]Currently, the California Road and Troublesome Brook Stations draw their supply from WJWW.

and lawn watering accounts for much of the difference. In the 1994–1998 period, peak day demand was at most 24.8 MGD in the winter, 8.6 MGD below the summer peak. Peak hour demand reached only 32.2 MGD, 11.2 MGD below the summer (IR NWRC 4-35). Therefore, any concern that Catskill would be unavailable in *winter* months does not justify sizing the DIP to meet the summer peak without Catskill.

Q: Is the Company correct that it must have enough baseload capacity to meet the annual hourly peak?

A: No, for two reasons.

- Baseload water supplies need not meet hourly peak loads. Storage facilities store water during low-use off-peak hours and release that water in peak hours. The maximum daily demand for United Water in 1994–98 was 33.4 MGD, 10 MGD less than the peak hour.
- During a water emergency, the Company has the option of prohibiting the use of lawn sprinklers and requesting voluntary cutbacks in water use. A large part of the difference between the summer and winter peaks can be considered to be interruptible at low cost in emergency situations.[15]

Q: Has the Company quantified the effectiveness of conservation or water restrictions in reducing its loads?

A: No. The Company did not respond to the Commission's instruction to evaluate water conservation as a means to reduce the capacity of the DIP. Nor does it provide any data or estimates of past response to water restrictions, or projections of responses (IR Eastchester 7-5).

[15]In addition, both WJWW and Croton remain available as emergency supplies.

Q: Has the Company demonstrated that 50 MGD is its peak hourly load?

A: No.

- United Water is unable or unwilling to provide historic peak hour load data (IR Eastchester 7-3).
- The 49.4 MGD peak that United Water claims to have reached in 1991 includes Pocantico. Since the DIP is intended solely to meet demands of the New Rochelle district (Distante 2004 at 8–9; IR Eastchester 8-3b), it is not clear why 50 MGD of capacity would ever be needed there.
- According to IR NRWC 4-35, the highest hourly peak reached in the period 1994–1998 was 43.4 MGD, or 1.8 million gallons per hour, and the Company is not projecting significant load growth in the future.

C. Value of Excess Capacity

Q: How much excess capacity would United Water have if the DIP were constructed?

A: United Water projects an average daily demand of 20 MGD, a maximum day demand of under 35 MGD, and a peak hour demand of 47 MGD (Exhibit DFD-3, Pointing at 4). The two firm baseload supplies alone, Delaware with 50 MGD and Catskill with 31 MGD would leave unused capacity of

- 61 MGD on average,
- 46 MGD over the maximum day,
- 34 MGD on the peak hour.

In addition, some or all of the 13 MGD of WJWW would be available under most circumstances and United Water's 8 million gallons of storage would be available to serve peak demands.

Q: Has United Water determined what it would do with the excess capacity resulting from constructing a 50 MGD facility to replace a 17.5 MGD facility?

A: The numerical comparisons notwithstanding, United Water denies that the DIP would result in any excess capacity and hence denies any plans for using of the excess. Since it is obvious that constructing the proposed DIP (or any similarly sized supply) would leave United Water with excess capacity, the utilization of that excess should be reflected in the Company's planning and the Commission's ratemaking. If United Water's inability to find adjacent water companies with excess supplies was genuine, the regional water market may be tight, especially if other companies must abandon Croton and other supplies to meet the standards of the Safe Drinking Water Act. The shareholders would then be paid twice for the Delaware Aqueduct capacity: once by the ratepayers, under a three-year schedule of rate increases, and again by an off-system purchaser.

Q: Would those excess revenues flow back to ratepayers in the next rate case?

A: Perhaps so, but the Company may not have to file a rate increase for many years, due to the operation of surcharges for mains renewal, water costs and the DIP. Additional revenues from excess Delaware supply would simply flow into the shareholders' pockets.

Q: How can this potential abuse be avoided?

A: The surcharge for the DIP or any other new supply source should include a credit to customers for any revenues from sale of water off-system.

D. Financing New Supply

Q: How does the Company propose to finance the DIP?

A: The Company has proposed that the project be treated for ratemaking purposes as being financed with the average embedded capital structure, both on an

interim basis through the DIP surcharge and on a permanent basis as the DIP investments enter the rate base. In this proceeding, United Water has requested a pre-tax rate of return of about 12.6%.

Q: Is that an appropriate approach?

A: No. United Water does not appear to have identified the least-cost financing for the DIP, or any other new supply required to comply with drinking-water quality requirements. The Company should be seeking funding through New York Drinking Water State Revolving Fund (DWSRF).

Q: Please describe the DWSRF.

A: The New York Drinking Water State Revolving Fund was created in 1996 as a result of State and Federal legislation to subsidize infrastructure improvements (to municipally and privately owned water systems) needed to achieve or maintain compliance with federal or state drinking water standards. Moneys are allocated based on a priority ranking system. Under the current allocation rules, the highest priority (100 points) is available for projects that are necessitated by the filtration requirements of the Surface Water Treatment Rule (NYS DOH 2005). The funds are available at interest rates well below market; the 2004 allocation plan reported an effective interest cost of 3.18% on leveraged loans. I understand that recent rate projections are below 3%.

Q: Would an appropriately sized DIP or a similar United Water project be eligible for funding from the DWSRF?

A: Yes. If United Water requires any form of the DIP, or any new supply source, it is to comply with the Surface Water Treatment Rule by replacing the unfiltered Croton supply, as mandated under a consent decree between the New York State

Department of Health and United Water. An appropriately sized DIP would apparently be eligible for 100% DWSRF financing.[16]

Q: Are there considerations that would reduce the benefit of the DWSRF funding for United Water?

A: Yes, to some extent. The DWSRF principal must be repaid within 20 years of the project completion date. That is equivalent to a 5% depreciation rate, rather than the 2.88% depreciation rate United Water anticipates for the DIP.

The total capital recovery rate (return, income taxes and depreciation) in the first year with the DWSRF would thus be less than 8% (5% for principal, 3% for interest), assuming straight-line recovery of principal, versus 15.5% (2.9% for depreciation, 12.6% for pre-tax return) with rate-base financing. The revenue requirements for capital recovery would also fall faster with the DWSRF funding than with rate-base financing, and be completed after 20 years.

Q: If new water supply is qualified for 100% DWSRF funding, how should it be treated for rate purposes?

A: The discounted financing of the DWSRF should be flowed through to benefit water customers, to defray the costs of state- and federally mandated improvements. The fund has not been created to enhance the profits of water utilities.

This principle has long been recognized in the water-utility context. In 1978, the California Public Utilities Commission held that projects funded by the government-subsidized loan program should be excluded from base rates,

[16]The fund does not pay for projects for which growth is "a substantial portion of the project" (NYS DOH 2005 at §4.4). Replacing a 17 MGD supply with a 50 MGD supply might be considered substantially a growth project, unless the additional capacity were actually needed to provide clean drinking water.

and financed through a segregated rate surcharge mechanism governed by the following precepts:

> We have adopted the following policies to govern this and other situations in which there is an opportunity to employ publicly furnished capital to provide better service and/or lower rates for customers of privately owned utilities.
>
> 1. Any such program is the economic equivalent of a subsidy. All benefits of the subsidy must be flowed through to the customer in the most direct fashion possible, except when there is unequivocal evidence that the legislature intended otherwise.
>
> 2. The program should contain checks and balances to ensure that there are no unintended windfalls to the utilities. We should be able to provide assurances that further Commission and/or staff members cannot use the program to provide under-the-table extra benefits to utility managements.
>
> 3. Customers have a right to be fully informed as to costs and benefits of projects financed in this matter. They should have at least the same basic information about both original project costs and financing costs as they would about the purchase and financing of a used car. Without such information, it is difficult for consumers to participate intelligently in the decision-making process.
>
> 4. Unless there are overriding consumer interests, we should not act in a manner which will diminish the lender's security. In particular, we should avoid a solution which arbitrarily creates substantial cash flow deficiencies in any year.[17]

[17]Quincy Water Company, Decision No. 88973, Case No. 57406, 1978 Cal. PUC LEXIS 199; 84 CPUC 79 (6/13/78) at 16–17.

The California Commission has continued to follow the Quincy dedicated-surcharge practice, and is even now in the process of updating this rule to address additional sources of subsidized financing.[18] The New York Public Service Commission has used an identical surcharge mechanism in the DWSRF context.[19]

One way to ensure that the benefits of favorable financing flows to customers would be to exclude the capital cost from rate base and to finance the project through a reconciling rate surcharge sufficient to make the principal, interest, and reserve payments on the DWSRF loans.

Q: Would United Water receive any equity return on the replacement supply source?

A: If United Water cannot secure 100% DWSRF financing, it would use some equity financing, which should be recovered either through the surcharge or base rates, depending on the magnitude and the nature of the exclusion from DWSRF. There is also an equity return component built into United Water's substantial request for recovery of AFUDC for the DIP.

As the California Public Service Commission said in a similar context, "When and if extra incentives for managements of small utilities are needed, they should be expressly provided and labeled as such in the findings in a general rate case."[20] If the Commission finds that United Water's supply

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[18]Order Instituting Rulemaking on the Commission's Own Motion To Develop Rules and Procedures to Preserve The Public Interest Integrity Of Government Financed Funding, Including Loans And Grants, To Investor-Owned Water And Sewer Utilities; Rulemaking 04-09-002; California Public Utilities Commission; 2004 Cal. PUC LEXIS 411; (September 2, 2004).

[19]Petition of Gipsy Trail Club, Inc., Case No. 02-W-0415; NYPSC; 2002 NY PUC LEXIS 324 (July 25, 2002).

[20]Quincy, op cit.

planning deserves some additional incentive or bonus, that bonus should be explicit, rather than hidden as extra equity.

Q: Does the Company have an obligation to pursue opportunities for tax exempt and government subsidized financing?

A: Yes. This Commission has previously described the obligation to pursue least-cost financing opportunities, for example in Re New York Water Service Corporation, Case 88-W-157; Opinion No. 89-21, 104 P.U.R. 4th 78.

E. Rate Impacts of DIP Surcharge

Q: Has the Company quantified the effect on customer rates of the DIP or of its proposed surcharge?

A: No, even though the Commission in Case No. 99-W-0948 required a bill impact analysis before approval of a DIP surcharge. Mr. Distante (2004 at 13) does provide the Company's most recent DIP cost projection for a projected completion date of June 2007. Company Witness Mark Gennari (2004 at 9) provides an estimate of the effect of flowing the AFUDC portion of the costs through the surcharge mechanism. This information could be used to make a rough estimate of the rate effects of the project with and without the surcharge. However, the Company simply refuses to "speculate" on the bill impacts "due to the continued delays in the start of the project." (IR Eastchester 7-1)

Q: Has the Company proposed a plan for accurately informing ratepayers of the timing and bill impacts of any DIP surcharges, as required by the Order in 99-W-0938?

A: No.

Q: Has the Company prepared "A reasonable customer outreach and education plan concerning any DIP surcharge" as required by the Order in 99-W-0938?

A: No.

IV. The Proposed Mains-Renewal Program

Q: Please describe United Water's long-term mains-renewal program.

A: The Company has begun to implement a long-term program to replace or clean and line over 60% of its mains. The Company has considerably scaled back its plans from the constant $6 million per year proposed in the previous case, to about $2 million annually in the rate period. These investments are recovered between rate cases through the Long-Term Main-Renewal Program (LTMRP) surcharge.

Q: Do you have any comments on the LTMRP or the associated surcharge?

A: Yes. I have one comment on the timing of the program itself and a few more on the surcharge mechanism.

Q: What is your comment with respect to the timing of the program?

A: The expenditures on the mains-renewal program should be adjusted, as much as possible, to minimize the rate impacts during the period that the costs of replacement water supply (e.g., the DIP) will be added to customer rates.

Q: What suggestions do you have regarding the LTMRP surcharge?

A: I have five such suggestions. First, the surcharge is currently designed to recover all mains replacements and renewals, even though some of those projects may be comparable to investments the United Water and other water utilities have routinely made, financed in part from depreciation cash flow, and rolled into

rates in the next rate case. The LTMRP surcharge should only apply to investments in excess of routine levels. The Commission should instruct its staff to determine the routine level of mains renewal, based on United Water's rate of mains investment in the 1990s and on the expenditures of other water companies.

Second, the surcharge would allow the Company to raise rates even if it were already earning more than its allowed rate of return. United Water could over-earn due to increased sales or other factors, while flowing through rate increases for the LTMRP surcharge. The surcharges will tend to increase the duration between rate cases, which may allow it to continue over-earning for several years. The LTMRP surcharge should only apply to the extent that the Company would otherwise earn less than its allowed return.[21]

Third, the funds recovered from the surcharge should be subject to reconciliation in each rate case for audited expenditures, for prudence and for financing costs. The comparable surcharge for the Bridgeport Hydraulic Company excludes recovery of 10% of expenditures, pending prudence review "at the time the facility is entered into service as being used and useful."[22]

Fourth, the surcharge should flow through to ratepayers the actual cost of financing for the program, which may be less than the embedded return.

Fifth, the Company expects the renewal program to reduce energy costs (to maintain pressure through restricted pipes) and water losses (due to the reduced pressure requirement and the replacement of leaky pipes). The Commission

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[21]The corresponding surcharge by the Philadelphia Suburban Water Company provides that the surcharge "will be reset at zero if the company's earned rate of return would exceed its allowable rate of return as determined in the last base rate case" (IR NRWC 2-18).

[22]Connecticut Division of Public Utility Control Regulations, Art. 3 Part 2 § 16-1-59E(a)(5), attached to the Company's response to IR NRWC 2-18.

explicitly included the latter factor in approving the mains-renewal program (Order in 99-W-0984 at 40). Provisions should be included for offsetting the mains investment with these savings.

V. Rate-Design

Q: What rate design issues will you address in this section of your testimony?

A: I address the reasonableness of the following elements of the Company's rate proposal:

- Allocation of public fire-protection services to municipalities,
- The declining-block rate structure of the Company's current and proposed rates.

A. Hydrant Charges

Q: How are hydrant costs currently recovered?

A: United Water assesses municipalities a charge for fire-protection services, levied as a fee per hydrant. The municipality then recovers these charges from property owners through property taxes. The Company is proposing to increase that fee by 45% from $426.72 (Company Witness Carly Jersey 2004 Exhibit CDJ-4 at 5) to $619.17 per hydrant.

Since United Water does not explicitly allocate any costs, but simply increases existing tariffs by equal percentages, it is not possible to determine what costs are recovered through any charge. (IR Eastchester 6-3, 6-4, 6-5, 6-6, 6-7, 6-8). The hydrant charges appear to be too large to cover only the costs of hydrants, but may be a historical artifact of the United Water's ratemaking.

Q: By how much do the hydrant fees exceed the costs of the hydrants?

A: Assuming 3100 hydrants (IR Eastchester 5-11b), a net hydrant plant of $5.8 million (Doherty 2004 Exhibit KHD-1, Sch. 2, at 2) and a carrying charge of 20%, I estimate roughly that the annual cost of a hydrant is about $375, an amount that is less than the current fee per hydrant. The Company proposes to increase the fee to a level that is 65% above the cost of a hydrant.

Q: How should these costs be recovered?

A: The hydrant charges would more reasonably be collected through basic water charges.

Q: How did the Commission respond to this issue in United Water's last case?

A: The Commission's decision approving the Agreement in Case 99-W-0948 observed:

> As property tax expense is more than 22% of the company's annual revenue requirement, any petition the Consortium files seeking material relief from hydrant charges should logically address the issue of whether the company's property taxes would be decreased as a product of the Consortium's proposed revenue allocation change and, if so, by how much and when. (Opinion No. 00-10 at 44).

Q: How can the Commission deal with the issue of property-tax reduction in the context of the allocation of hydrants?

A: The Commission could condition the transfer of the hydrant charges to volumetric charges on receipt by the Commission of commitments by the communities representing a majority of United Water's property-tax bill that they will set tax rates lower by the amount of the hydrant charges, in the next rate-setting cycle, if the hydrant charges are ended.[23] Once such commitments

[23]In other words, the municipality would prepare two budgets, one to cover all costs and another to cover all costs minus the hydrant charges, and corresponding tax rates. The higher rate

are received, the Commission could order the elimination of the hydrant charges, and the accumulation of those charges in a deferral account, to be included in volumetric rates in the next rate proceeding.

Q: Why do you believe that it is more appropriate to recover hydrant costs through water usage charges?

A: Recovering hydrant costs through water usage charges is efficient and equitable, for the following reasons:

- Hydrants serve system purposes, such as pressure testing, C-value tests and mains flushing (AWWA 1999b at 42–43). If hydrants were not required for any other purpose, hydrants or something similar would still be required for operation and maintenance of the system.[24]
- There are significant inequities in recovering the cost of public fire protection through property taxes.
- The Company has not provided any cost basis for its current or proposed hydrant charges.

Q: What is the rationale for collection of hydrant costs through property taxes?

A: It is sometimes argued that fire-protection benefits property owners in proportion to the value of their property. If that is true, and if property taxes are collected as an equal percentage of property value, the costs of fire protection

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will go into effect if the hydrant charges continue to be billed to the municipalities, while the lower rate will go into effect if the hydrant charges are transferred to volumetric rates.

[24]The flushing and testing devices might look a little different from hydrants. For example, they might be padlocked, rather than using the distinctive pentagonal hydrant nuts, since they would only need to be operated by United Water staff and contractors, and not by local fire departments.

would be equitably recovered through property taxes. Even though cost recovery would not be proportional to cost causation, at least cost recovery might be roughly proportional to the value of property served and by that measure to the value of service.[25]

This rationale is dependent on some very important assumptions, and is often inapplicable.

Q: Why aren't property taxes an equitable means for recovering the cost of hydrants?

A: First of all, as noted above, hydrants are required for purposes that have nothing to do with fires. The system benefits of hydrants (and their associated costs of mains and water supply) should be allocated to usage, were United Water capable of allocating any of its costs to rate classes.

Second, property-tax assessments are not a very good measure of value to taxpayers of fire protection. For example, property assessments do not reflect the value of personal property, human health and safety, or avoidance of liability for injury to third parties.

Third, the Company's approach to recovery of hydrant costs gives tax-exempt entities a totally free ride, regardless of how dependent they are on the hydrants for fire-protection service, or how valuable that service is to them. In the City of New Rochelle, about 30% of the total assessed value is exempt from property taxes. Fire-protection services are provided to all water customers, even those that do not pay taxes, and should be collected from all water users.

Fourth, the municipalities would have to absorb the proposed hydrant-charge increase of more than 40% within a budget that is already fixed and

[25]See AWWA Manual M26 for a statement of these assumptions.

committed for the current fiscal year. Only if the municipalities had notice of a year or more of increased charges would they be able to reflect them in setting future property-tax rates.

Q: Are you aware of any industry publications that support your position?

A: Yes. The American Water Works Association Manual M26 (AWWA 1999a), recognizes (at 50) that recovering public fire-protection costs through property taxes may be inequitable:

> …there are situations where the use of property taxes can result in some inequities. The most obvious problem arises with the treatment of tax-exempt properties. Because these properties do not pay property taxes, they do not contribute toward public fire protection even though they receive the service. This problem is most acute in communities that have numerous state and federal office buildings or in communities with other large tracts of tax-exempt property, such as schools and universities.

Q: Has the Company provided any cost justification for its proposed hydrant charges?

A: No. According to the Company's responses to IRs Eastchester 6-3–6-8, it has not been able to locate any cost allocation study performed for United Water and it is unable to provide any other supporting documentation for any of the following:

- the allocation of costs between fire protection and general water service,
- the categories of cost that are reflected in the hydrant charges,
- per-hydrant costs,
- the hydrant charge.

The Company is not even able to say what categories of cost *should* be reflected in a cost-based determination of hydrant charges. In short, there is no basis for the Company's proposal, other than inertia.

Q: What factors should be considered in a cost allocation study?

A: Since fire protection is a public service that benefits all water users, it should not be allocated more than its incremental costs. That is, all costs of a system other than special provisions for fire-protection service (which would include hydrants and the supply and distribution investments necessary to use them for system flushing) should be allocated to basic water use.

Q: Once that study were performed, how should the incremental fire-protection costs, if any, be recovered?

A: That depends on the particular circumstances of the particular water utility and its customer base. In the case of the Company, water rates provide a more-equitable mechanism for collecting fire-protection costs than do property taxes.

B. Declining Blocks

Q: Does the Company's rate design proposal incorporate block rates?

A: Yes. The Company proposes to retain the existing declining-block rate structure and increase all rate components by equal cents per gallon. The effect is to maintain the slope of the declining-block structure, in absolute dollar-per-gallon terms. United Water also goes so far as to propose that the DIP adjustment be an equal percentage surcharge (Gennari 2004 at 7).

Q: Is a declining-block rate structure appropriate for United Water?

A: No. The declining blocks provide discounts for high usage, which does not reflect United Water's cost causation. The Company's rate designs should be flattened and eventually inverted.

Q: Why would flat or increasing block rates be more appropriate for United Water than the proposed declining-block rate structure?

A: There are five such reasons. First, the tail block usage is most likely to occur in the summer; usage on the peak day (and even more the peak hour) is more likely to be in the last block than is usage in other periods. This conclusion follows from the fact that United Water's summer peak is driven by irrigation (lawn sprinklers, garden watering) and recreation (e.g., pools and sprinklers). Customers are more likely to be in the tail block in the summer than in the winter; large water users with pools and irrigation requirements are more likely to be in the last block than small residential and commercial users without those outdoor uses. Therefore, the declining-block rate structure discourages water conservation in the most interruptible and lowest-priority peak-period uses.

Second, the summer peak determines many costs, such as requirements for total daily supply capacity, total hourly supply capacity, and mains capacity. Rather than charging more for this peak usage, United Water proposes to continue subsidizing those summer uses with higher rates for less peaky smaller customers.

Third, this rate case is driven in large part by the Company's proposal for the California Road Pump Station, which is justified (to the extent it is justified at all) by peak loads. Meeting increased peaks is very expensive, as California Road demonstrates.

Fourth, while declining-block rate structures may be appealing for utilities with high fixed costs and low variable costs, that situation no longer applies for United Water. In addition to the high costs of supply capacity, United Water is faced with charges for water from the New York City system (the Company's only supplier) that are much more expensive now than when the declining-block

rate was established (whenever that was) and United Water expects those charges to increase significantly in the future.

Fifth, New York City's wholesale charges for water have an increasing-block structure. New York City charges a higher rate for water usage above an entitlement quantity per capita per month.[26] Obviously, increasing consumption (which is encouraged by declining-block rates) increases the proportion of water purchased at the higher rate, and hence the average cost of water. In addition, United Water is most likely to be in the high block of the New York City rate schedule in the summer, when its high-use customers are most likely to be in the United Water tail block. Hence, United Water is subsidizing customers just when they are most expensive to serve.

Decreasing charges for increasing usage, when costs are increasing with usage, is unsound and undesirable rate-design policy.

Q: How much conflict is there between the New York City wholesale rate structure and the United Water retail rate structure?

A: The conflict in the rate designs is stark. The "Excess per Capita Charge" in the New York City rate schedule is about four times the "entitlement" rate for lower usage levels, which is $591.21 per million gallons (IR BEA-14C, JDG-1 and Attachment to BEA-14 at 45). The premium United Water pays for water at the margin is more than $1 per hundred cubic feet *more* than the price for the entitlement block. In contrast, the rates proposed by United Water for the rate period have tail blocks that are $0.63/ccf *less* than the preceding block.

The United Water proposed tail-block rate for the start of the rate period is $2.495/ccf, which is not much more than New York City's charge of about

[26]The Company is disputing some of these charges.

$2.10/ccf including losses. Including pumping energy, chemicals and other variable costs, United Water may be recovering less than the short-run variable cost of on-peak water supply from the tail block. The tail block should be raised to recover full variable costs, as well as the incremental cost of supply, pumping, transmission and mains capacity.

Q: What can be done with the declining block rates in this proceeding?

A: I have the following recommendations. First, if approved by the Commission, any supply-related surcharges, including the DIP, LTMRP, and Purchase Water surcharges, should be applied to rates on a commodity basis, not on a percentage basis. Second, the Commission should order that the revenue increases (including reallocation of the hydrant charge) be allocated between rate classes in proportion to current revenues, due to lack of a cost-allocation study.[27] Within each class, the rate increase should be allocated to the tail block, until that rate reaches the third block, at which point those two blocks should be merged and increased together, and so on, until they reach the first block. At that point, the declining-block rate will have been eliminated, and further rate increases can be assigned to the flat usage rate structure.

In addition, United Water should develop seasonal rates, to reflect the differences in capacity and supply costs between seasons. Summer water rates should be raised gradually, while winter rates are lowered. This change could start in the next rate case, which I expect would be required in about three years, when United Water files for a review and extension of its mains adjustment. The

[27]This would be true of all base rate increases allowed in this case, any succeeding increases to reflect the cost of the new supply (once United Water has justified and/or scaled back its proposal), and the mains-cost adjustment.

mains adjustment itself could be directed primarily at the summer months, to improve the pricing signals in United Water's rates.

VI. Lost and Unaccounted-For Water

Q: What factors should the Commission take into account in considering the share of the Company's water that is lost and unaccounted-for??

A: First, United Water's percentage of received water that is not sold is unusually great. Mr. Pointing (2004 at 23) testifies, "from September 1996 to September 1998, our percentage of lost and unaccounted-for water was reduced from 25.2% to 21.3% We have not achieved a reduction from the 1999 level of 21.3%. We currently have a level of 21.4%." He also describes "the current level of unaccounted-for water" as "24%" (Ibid.) Over the last ten years, United Water reports lost and unaccounted-for water at 16.5–26.8% (IR Eastchester 9-6).

	Lost and Unaccounted-For Water
1994	22.4%
1995	23.9%
1996	21.4%
1997	22.4%
1998	18.0%
1999	17.1%
2000	26.8%
2001	21.5%
2002	24.2%
2003	16.5%

Interestingly, the values United Water reports in IR Eastchester 9-6 are different than those in Mr. Pointing's testimony; the most recent year for which United Water could provide data in IR Eastchester 9-6 is 2003, with losses of 16.5%, not the 21.4% or the 24% claimed by Mr. Pointing. In the current case, United Water proposes a target of 18%, about 10% greater than its losses in

2003 (IR Eastchester 9-6). For comparison, WJWW, a neighboring water company, reports the following values:

	2003	2002
Total Production	4,213.8	4,456.1
Total Sales	3,779.6	4,194.6
Lost and unaccounted	434.2	261.5
L&U %	11.5%	6.2%

Source: Westchester Joint Water Works Annual Report of Operations (2003)

Westchester Joint Water Works makes considerable wholesale sales, which may reduce its percentage losses. Even were no water lost or unaccounted-for in association with the wholesale sales, WJWW's loss percentages would still be only about 10% and 17% of retail sales in 2003 and 2003, respectively.

As the Commission noted in Case 99-W-0958, "High levels of lost and unaccounted for water continue to be a problem" for United Water (Order at 9).

Second, the Company has proposed an expensive program to reduce that percentage. United Water has asked for $1 million annually for the next three years to find and fix leaks, in addition to $0.2 million annually over five years in meter replacement to (among other things) reduce unaccounted-for water. (Distante 2004 at 19–20, 22).

Third, United Water has sometimes claimed that the mains-replacement program will also contribute to reducing losses (Distante 2004 at 18; IR Eastchester 9-7) and the Commission has accepted that as a rationale for the mains-replacement program (Case 99-W-0958 Order at 40).

Q: What implications do these facts have for the Commission's approach in this proceeding?

A: The Commission should maintain pressure on the Company to achieve real reductions in lost and unaccounted-for water. Among other things, the Commission should put United Water on notice that the next rate case will review the

prudence of its spending to reduce lost and unaccounted-for water, including any revenues allowed in this case to cover future spending.

The Commission should also require that United Water demonstrate that it has maximized the net benefit of its leak-detection program. For example, United Water has claimed that it has experienced very good results from assigning a single individual "full time to leak detection" (Pointing 2004 at 13). Considering the success United Water has reported with this approach, the Company should be able to explain its decision to limit its leak-detection staff to a single individual.

Finally, the Commission should gradually reduce United Water's allowance for lost and unaccounted-for water. In this proceeding, the Commission should consider setting the allowance at the 16.5% value from 2003, unless United Water demonstrates that the 2003 value was reduced by non-recurring circumstances. In the longer term, the Commission should consider assigning to the Staff the responsibility of defining a target loss factor for United Water, based on industry norms.

Q: Does this conclude your testimony?

A: Yes.