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December 2, 2022

VIA EMAIL ONLY

Hon. Tricia Caliguire, ALJ
Office of Administrative
Law P.O. Box 049
Trenton, NJ 08625-0049

Re: In the Matter of the Petition of New Jersey American Water
OAL Docket No.: PUC 00319-2022S

Intervenor's Motion to Bar Rebuttal Testimony or Alternatively to Adjourn the
Scheduled Hearing Dates to Allow Essential Discovery

Dear Judge Caliguire:

On behalf of Intervenor Paul Savas, please accept this letter as an informal motion, made pursuant to N.J.A.C. 1:1-12, the April 8, 2022 Prehearing Order (Paragraph 6) and the Court's August 12, 2022 Scheduling Letter. We seek an Order either precluding or barring certain aspects of the rebuttal testimony of Rate Counsel witness Howard Woods. Alternatively, we seek an adjournment of the scheduled hearing dates to allow for proper and essential discovery of the significant and previously undisclosed factual matters Mr. Woods has newly introduced in his now transformed role as a "hybrid" witness testifying on *both* expert and factual matters. We note further that we intend to file an *in limine* motion early next week barring Mr. Woods' direct and rebuttal testimony in its entirety as utterly lacking in foundation and comprised of inadmissible hearsay and on other related grounds.

FACTUAL BACKGROUND

The Division of Rate Counsel submitted the pre-filed direct testimony of Howard Woods, Jr., P.E. on October 18, 2022. Therein, Rate Counsel presented Mr. Woods as a water engineering expert engaged "to review New Jersey American Water Company, Inc.'s ("NJAW")

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Petition with specific attention to the following areas, which are addressed in N.J.S.A. 40:55D-19:

1. Whether or not the present or proposed use by [NJAW] of the land described in the petition is necessary for the service, convenience or welfare of the public; and
2. Whether or not the present or proposed use of the land is necessary to maintain reliable service for the general public and that no alternative site or sites are reasonably available to achieve an equivalent public benefit.” (Exhibit A, October 18, 2022 Direct Testimony of Howard Woods, p. 3).

In his pre-filed direct testimony, based solely on his review of *Petitioner’s* “initial filing and response to discovery requests in this matter”, Mr. Woods proffered the bare legal conclusion that NJAW’s Petition pursuant to N.J.S.A. 40:55D-19 should be granted. (Exhibit A, p. 5, 13-14, 16-17) His “echo chamber” testimony merely adopts the direct testimony of NJAW expert witness Donald Shields, both as to the necessity of the proposed Fenwick Tank reconstruction and that no alternative site or sites for its construction are reasonably available. (Id.) Despite the Board of Adjustment’s findings and Respondent/Intervenor’s well-known contentions, Mr. Woods’ pre-filed direct testimony fails to address or even mention whether NJAW had or has options other than the construction of the new and geometrically larger tank proposed. According to NJAW’s own documentation, such options included (1) NJAW’s preferred option of the renewal or renegotiation of its pre-existing contract with the Morris County Municipal Utilities Authority (“MCMUA”) and (2) the purchase of water directly from the Southeast Morris County Municipal Utilities Authority (“SMCMUA”) or (3) the purchase of water from other sources in addition to other infrastructure improvements NJAW has already undertaken.

Through Mr. Woods’ November 21, 2022 rebuttal testimony, however, Rate Counsel reintroduces Mr. Woods as a “surprise” fact witness on these very matters. (Exhibit B, Woods Rebuttal Testimony, p. 1-3) On rebuttal, Mr. Woods offers previously undisclosed factual testimony purportedly based on his similarly undisclosed prior engagement since 2014 as an SMCMUA consultant. (Exhibit B, p. 2-3) Evidently, from his unexplained personal involvement, Mr. Woods now testifies that SMCMUA considered selling additional volumes of water to the NJAW and undertook an investigation of modifications to its system purportedly necessary to continue to make available water from the Clyde Potts Reservoir and to supplement this supply with water from other SMCMUA sources. (Id.) He testifies that SMCMUA concluded from that investigation that there would have to be either a relocation of the pump station or extensive modification to the clear water storage basin in the Clyde Potts Treatment Plant to comply with surface water treatment rules. (Id.)

Mr. Woods further testifies that during the course of its evaluation, SMCMUA became aware of New Jersey Department of Environmental Protection rules regarding polyfluorinated compounds (“PFC”) in drinking water. (Exhibit B, p. 3) He testifies that because some

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SMCMUA wells had low levels of those compounds present in the water, SMCMUA made a decision to retain the water available in the Clyde Potts Reservoir for its own customers within the SMCMUA District. (Id.) According to Mr. Woods' rebuttal testimony, SMCMUA currently has two wells off-line because of the presence of PFC's, and SMCMUA has joined in litigation against the manufacturers and suppliers of these compounds. (Id.) As a result, Mr. Woods testifies, "there is no surplus water available in the SMCMUA system to export to NJAW." (Id.) As to the source of his knowledge for this testimony, Mr. Woods testifies both that he has been engaged by SMCMUA since 2014 "to provide source of supply and business planning consulting services" and that he "personally participated" in the noted SMCMUA investigation, neither of which had been previously disclosed. (Id.)

In response to Mr. Woods' testimony introducing these previously undisclosed and highly material facts, Intervenor Savas has appropriately served supplemental discovery demands on Rate Counsel seeking extensive informational and document discovery. (Exhibit C.) We do not believe this discovery can be completed and properly evaluated prior to the scheduled hearing dates. We seek the production of all documents related to each aspect of Mr. Woods' new testimony including those relevant to the purported SMCMUA investigation, such as written reports or other materials or written communications reflecting internal discussions or deliberations. We also seek, among other things, a detailed narrative summary of Mr. Woods' relevant factual knowledge, identifying with particularity documents, dates, events, and other potential material witnesses, as well as disclosure regarding Mr. Woods' personal involvement in the course of events leading up to this dispute in his capacity as a paid consultant to a key non-party player, SMCMUA. To the extent other material witnesses are identified and material documents produced, we may seek and believe we have a right to appropriate supplemental discovery.

We have long sought such discovery. Intervenor Savas issued subpoenas seeking documents related to the sale or potential sale of water from the Clyde Potts reservoir to NJAW respectively to MCMUA and SMCMUA on May 20, 2022, and a supplemental subpoena to SMCMUA on September 16, 2022. (Exhibit D.) Neither entity nor NJAW produced documents or information remotely related to Mr. Woods' newly introduced factual testimony. Intervenor also moved unsuccessfully on September 9, 2022 to depose SMCMUA's Executive Director and a former NJAW employee on these very matters, a motion NJAW contentiously opposed.

Given these discovery efforts as well as the Respondent/Intervenors' emphasis on and the critical materiality of the alternative options available to NJAW, the surprise introduction by Rate Counsel of these newly alleged facts, particularly through the vehicle of rebuttal expert opinion testimony, is simply indefensible. Furthermore, Mr. Woods' purported opinion testimony merely parrots that of the Petitioner's expert, offering no independent evaluation or opinion of his own. His principal value to the Petitioner's case, and the evident reason for his appearance, therefore, is as an undisclosed material fact witness exempt from the Rules of Evidence applicable to lay witnesses. If Rate Counsel intended to introduce Mr. Woods as a hybrid witness offering both expert and fact witness testimony, the latter based upon his

incidental personal knowledge rather than his expertise, it should have disclosed that intention much earlier. Rate Counsel should have done so initially in response to the aforementioned subpoena. The Petitioner likewise should have disclosed Mr. Woods' factual knowledge in its own discovery responses assuming its likely knowledge of the subject matter.

At the very latest, the challenged testimony should have been included as part of Mr. Woods' October 18, 2022 pre-filed direct examination given its critical materiality to the issues before this tribunal. The failure to disclose this testimony and the newly introduced facts thus appears to be no accident. It begs the question as to whether NJAW had knowledge of these facts and whether it coordinated with Rate Counsel on their eleventh-hour disclosure. This is something that we likewise should be entitled to explore through additional supplemental discovery requests. In the absence of an adjournment and the right to fully responsive supplemental discovery, Mr. Woods' newly introduced fact witness testimony should be excluded as untimely and inherently prejudicial.

ARGUMENT

I. MR. WOODS' FACT WITNESS TESTIMONY SHOULD BE PRECLUDED FOR THE FAILURE TO TIMELY DISCLOSE ITS CRITICAL SUBJECT MATTER IN DISCOVERY

An expert's testimony at trial may be confined to the matters of opinion contained within the expert's report or otherwise disclosed during the normal course of discovery. Maurio v. Mereck Construction Co., Inc., 162 N.J. Super. 566, 569 (App. Div. 1978). A trial judge has wide discretion in deciding the appropriate sanction for the late disclosure of an expert report or material aspects of the expert, including either limiting the scope of the expert's testimony or barring his or her entire testimony outright. Brown v. Mortimer, 100 N.J. Super. 395, 401 (App. Div. 1968); Mauro v. Owens-Corning Fiberglas, 225 N.J. Super.

Mr. Woods' newly introduced fact witness testimony should be excluded as untimely and inherently prejudicial. The introduction of this testimony clearly was long-intended and its last minute introduction likely was known to and coordinated with the Petitioner. Obviously, the intention to offer this testimony was not made known in time to provide NJAW's adversaries with the fair opportunity to prepare for and challenge the testimony at trial. The failure of timely disclosure is particularly improper and highly prejudicial in the context of "hybrid" expert and fact witnesses such as Mr. Woods. Indeed, in his capacity as an expert, Mr. Woods merely serves as an echo chamber for the opinion testimony of NJAW's expert, Donald Shields. His purported expert status is thus merely an instrument for the wholesale and improper introduction of his fact witness testimony, testimony that would otherwise be inadmissible as hearsay and as lacking a proper foundation in knowledge and evidence. See State v. Vandeweghe, 351 N.J. Super. 467, 481-483 (App. Div. 2022). Mr. Woods' fact witness testimony can and should be excluded on this basis alone.

The prejudice to Intervenor if the testimony is permitted without an adjournment and opportunity to pursue the noted sought-after discovery is obvious. There will be no basis on which to challenge Mr. Woods' testimony with respect to the alternative options available to NJAW other than the proposed tower reconstruction. The Intervenor will be deprived of important material discovery that may completely discredit Mr. Woods' unsubstantiated assertions. Allowing Mr. Woods to present these assertions for the first time at this stage in this proceeding is particularly improper because of NJAW's failure to even allege much less substantiate before the Borough of Bernardsville Board of Adjustment that water could not be provided by either MCMUA or SMCMUA. As reflected in the Board Resolution and relevant transcripts, American Water thwarted and evaded the Board's legitimate inquiry into the necessity of the proposed tower reconstruction. (December 6, 2021 Board Resolution, p. 4-16.) Bryan Slota, the project manager for the proposed tower reconstruction, testified he was unsure why the MCMUA decided to terminate its contract with American Water. (Board Resolution p. 4, November 16, 2021 Transcript of Board Proceedings, 9:2-23:35, 34:1-52:25.) Another witness, Vincent Monaco, prevaricated in response to questions on the availability of renewal with the MCMUA at a higher price, citing regulatory considerations such as the inability to obtain BPU approval of disparate pricing, not the inability of either MCMUA or SMCMUA to continue to deliver the water made available to NJAW for many years. (April 15, 2021 Transcript 4:4-27:25, 36:2-46:25; June 21, 2021 Transcript 94:10-97:25, 102:1-108:25, 111:1-25, 123:1-127:25.) Under these circumstances, there is more than ample basis for Your Honor to bar the belatedly introduced factual testimony improperly presented by Rate Counsel on rebuttal.

II. IF MR. WOODS' NEWLY INTRODUCED FACT WITNESS TESTIMONY IS PERMITTED, THE HEARING DATES SHOULD BE ADJOURNED AND ADDITIONAL MATERIAL DISCOVERY PERMITTED

Where an expert is permitted to testify despite the late disclosure of his or her report or the material aspects of his or her testimony, an adjournment of the trial date is the proper curative measure to alleviate the prejudice to the adverse party from the abbreviated time in which to prepare. *O'Connor v. Abraham Altrus*, 67 N.J. 106, 129-130 (1975); *Mason v. Sportsman's Pub.*, 305 N.J. Super. 482, 493-495 (App. 1997). In the absence of a ruling barring Mr. Woods' objected-to testimony, Intervenor seeks and is entitled to significant material discovery from the SMCMUA and possibly the Petitioner to properly challenge the naked assertions being advanced in pre-filed rebuttal testimony. It is well within Your Honor's discretion to grant an adjournment and allow reasonable additional time for the completion of the supplemental discovery already served on Rate Counsel and any additional reasonable discovery demands to be served on either Rate Counsel or NJAW. Such minimal relief in the face of the improper eleventh-hour pre-trial surprise is clearly warranted and in the interest of justice.

CONCLUSION

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For the foregoing reasons, Intervenor respectfully submits that Your Honor should bar Mr. Woods' fact witness testimony or, alternatively, should adjourn the scheduled hearing dates to allow for the completion of appropriate supplemental discovery.

Very truly yours,

/s/ Phyllis J. Kessler

Phyllis J. Kessler
Of Counsel

PJK/caj
Attachments

EXHIBIT A

**BEFORE THE
STATE OF NEW JERSEY
BOARD OF PUBLIC UTILITIES
OFFICE OF ADMINISTRATIVE LAW**

In the Matter of:

**THE PETITION OF NEW JERSEY
AMERICAN WATER COMPANY FOR A
DETERMINATION CONCERNING THE
FENWICK WATER TANK PURSUANT TO
N.J.S.A. 40:55D-19**

**BPU Docket No.
WO22010004**

**OAL Docket No.
PUC-00319-2022 S**

DIRECT TESTIMONY AND EXHIBITS OF

HOWARD J. WOODS, JR., P.E.

**ON BEHALF OF THE
NEW JERSEY
DIVISION OF RATE COUNSEL**

**BRIAN O. LIPMAN, ESQ.
DIRECTOR, DIVISION OF RATE COUNSEL**

Division of Rate Counsel
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Filed: October 18, 2022

**New Jersey American Water Company, Inc.
BPU Docket No. WO22010004
Direct Testimony of Howard J. Woods, Jr., P.E.**

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1 **1. STATEMENT OF QUALIFICATIONS**

2 **Q. PLEASE STATE YOUR NAME AND ADDRESS.**

3 A. My name is Howard J. Woods, Jr. and my address is 49 Overhill Road, East
4 Brunswick, New Jersey 08816-4211.

5

6 **Q. BY WHOM ARE YOU EMPLOYED?**

7 A. I am an independent consultant and the New Jersey Division of Rate Counsel
8 (“Rate Counsel”) has engaged me in this matter.

9

10 **Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND**
11 **PROFESSIONAL QUALIFICATIONS.**

12 A. I hold a Bachelor of Civil Engineering from Villanova University (1977) and a
13 Master of Civil Engineering with a concentration in water resources engineering
14 also from Villanova University (1985). I am a registered professional engineer in
15 New Jersey, New York, Maryland, Pennsylvania, Delaware and New Mexico. I am
16 also licensed to perform RAM-WSM security assessments of public water systems.
17 I am an active member of the American Society of Civil Engineers, the National
18 Ground Water Association, the American Water Works Association, the Water
19 Environment Federation and the International Water Association.

20

1 **Q. HAVE YOU PROVIDED TESTIMONY IN UTILITY MATTERS ON**
2 **PRIOR OCCASIONS?**

3 A. Yes. I have testified in numerous rate setting proceedings and quality of service
4 evaluations in matters before the Public Utility Commissions in New Jersey, New
5 York, Connecticut, Delaware, Pennsylvania and Kentucky. The focus of my
6 testimonies is on matters involving revenue requirement, utility operations, system
7 acquisitions, planning and engineering.

8

9 **Q. PLEASE DESCRIBE YOUR PROFESSIONAL EXPERIENCE.**

10 A. A detailed description of my professional experience is provided in Appendix A
11 of this Testimony. In summary, I have over 45 years' experience in the planning,
12 design, construction and operation of water and wastewater utility systems. I
13 have worked for a Federal regulatory agency, a large investor-owned water and
14 wastewater utility, a firm engaged in contract operations of municipally owned
15 water and wastewater utilities, and in engineering and operational consulting for
16 the water and wastewater industry. During my career, I have been responsible for
17 all operations and functions including regulatory compliance, water production,
18 distribution and maintenance services as well as wastewater collection and
19 treatment. I have evaluated numerous water and wastewater acquisitions and I have
20 advised clients on the sale or acquisition of these systems.

21

1 **2. SCOPE AND PURPOSE OF TESTIMONY**

2 **Q. MR. WOODS, PLEASE DESCRIBE YOUR AREA OF RESPONSIBILITY**
3 **IN THIS MATTER.**

4 A. Rate Counsel engaged me to review New Jersey American Water Company, Inc.’s
5 (“Company”) Petition with specific attention to the following areas, which are
6 addressed in N.J.S.A. 40:55D-19:

7 1. Whether or not the present or proposed use by the Company of the land
8 described in the petition is necessary for the service, convenience or
9 welfare of the public; and

10 2. Whether or not the present or proposed use of the land is necessary to
11 maintain reliable service for the general public and that no alternative
12 site or sites are reasonably available to achieve an equivalent public
13 benefit.

14

15 **Q. WHAT MATERIALS HAVE YOU REVIEWED IN DISCHARGING THIS**
16 **ASSIGNMENT?**

17 A. I reviewed the Company’s initial filing and responses to discovery requests in this
18 matter. I also reviewed the Company’s supplemental testimony provided after the
19 initial filing. In addition, I also reviewed N.J.S.A. 40:55D-19 and various New
20 Jersey Department of Environmental Protection and New Jersey Board of Public

1 Utilities rules applicable to the design and construction of water supply facilities
2 needed to provide safe, adequate and proper service.

3

4 **3. SUMMARY OF FINDINGS AND CONCLUSIONS**

5 **Q. HAVE YOU REVIEWED NEW JERSEY AMERICAN WATER**
6 **COMPANY'S FILING?**

7 A. Yes, I have.

8

9 **Q. WHAT DOES THE COMPANY'S FILING AND THEIR PRE-FILED**
10 **TESTIMONY REQUEST?**

11 A. The Company's January 4, 2022 petition is an appeal of a decision by the
12 Bernardsville Borough Zoning Board of Adjustment denying the Company's
13 application for the replacement of an existing water tank with a newly constructed
14 water tank. The existing tank is referred to as the "Fenwick Tank." The
15 Company's Petition asks the Board to determine that the construction of the
16 proposed replacement tank is needed to provide adequate and reliable water
17 capacity and pressure for its customers, including the provision of fire protection
18 service, and that no alternative sites are reasonably available to achieve an
19 equivalent public benefit.¹

¹ Petition, Page 1, Paragraph 1.

1 **Q. DO YOU BELIEVE THAT THE COMPANY’S PETITION SHOULD BE**
2 **GRANTED?**

3 A. Yes, for the following reasons. First, I believe that the existing Fenwick Tank is too
4 small to comply with current regulatory requirements for gravity distribution
5 storage within the area now served by the tank. I also believe that changes in the
6 way that water is supplied to this portion of the Company’s water system cause the
7 existing tank to be too low in elevation to maintain even minimum service pressures
8 for routine water service and public fire protection for customers in this service
9 area, which includes Mendham Borough, Mendham Township and Bernardsville
10 Borough. The present land use accommodates the existing Fenwick Tank and has
11 done so for 67 years. While the tank does not meet current regulatory
12 requirements, the existing tank provides some degree of equalization storage and
13 fire reserve for the service, convenience or welfare of the public. The proposed
14 tank, which will be constructed in place of the existing tank, represents the same
15 land use that has existed for more than six decades, and this continued use is also
16 necessary for the service, convenience or welfare of the public. Moreover, it is my
17 opinion that the proposed use of the land is necessary to maintain reliable service
18 for the general public and that no alternative site or sites are reasonably available to
19 achieve an equivalent public benefit. Finally, use of any alternative site would
20 result in significant expense to ratepayers without any additional benefit.

21

1 **4. EXISTING TANK AND LAND USE**

2 **Q. PLEASE DESCRIBE THE EXISTING FENWICK TANK.**

3 A. The existing Fenwick Tank is a circular, welded steel tank approximately 44 feet
4 in diameter. It has three shell rings with an overall shell height of approximately
5 22 feet.² The tanks stores roughly 240,000 gallons of water at the overflow
6 elevation of 772 feet. The tank has been in service since 1954.³

7
8 **Q. WHAT FUNCTIONS DOES THE EXISTING FENWICK TANK
9 PROVIDE?**

10 A. The existing tank provides distribution storage for approximately 3,000 retail
11 water customers in Mendham Township, Mendham Borough and in the Borough
12 of Bernardsville.⁴ The ground elevations of the properties served by this tank fall
13 in a range of 320 feet to 722 feet.⁵ The useable volume of the existing tank is
14 much less than the full storage volume available. At the higher elevations served
15 by the tank (722 feet), and the minimum pressure criteria permitted by NJDEP
16 regulation (20 pounds per square inch under all operating conditions), only the top
17 3.8 feet of the total storage volume is usable under static conditions.⁶ The amount

² Response to RCR-E-9, Attachment, Page 5 of 36.

³ Annual Report of New Jersey American Water Company Inc. to the New Jersey Board of Public Utilities; December 31, 2020; Page 49c; Line 19.

⁴ Direct Testimony of Donald C. Shields, Exhibit PT-1; September 20, 2022; Page 9; Lines 12-13.

⁵ Response to RCR-E-3.

⁶ The minimum water surface elevation that would result in the minimum allowable pressure with no water flowing in the system is $722 \text{ ft} + 20 \text{ psi} \times 2.31 \text{ ft/psi} = 768.2 \text{ feet}$. This is only 3.8 feet lower than the tank overflow elevation of 772 feet.

1 of water available in the top 3.8 feet of the tank is slightly more than 43,000
2 gallons.⁷

3

4 **Q. WHAT IS DISTRIBUTION STORAGE?**

5 A. Distribution storage is a volume of potable water maintained within a network of
6 water mains, proximate to groups of customers, to satisfy the peak demands
7 imposed by those customers. Peak demands occur as a result of hourly and
8 seasonal fluctuations in normal use and for special needs like suppressing and
9 extinguishing fires. Distribution storage is also typically located within the
10 distribution network at a point that is remote from the principal sources used to
11 supply water to the customers. This is done to maximize the opportunity for
12 multi-directional flow during peak demand periods and emergencies.

13

14 **Q. DOES THE FENWICK TANK INTERACT WITH ANY OTHER**
15 **FACILITIES IN THE COMPANY’S DISTRIBUTION NETWORK?**

16 A. Yes. The Fenwick Tank interacts with the local water distribution mains and the
17 facilities supplying water to those mains, like the replacement Oak Place Booster
18 or the Tower Mountain Booster pump stations or the former supply connection
19 from the Morris County Municipal Utilities Authority (“MCMUA”) that have
20 supplied water to this distribution system. The pumps, the water distribution
21 mains and the storage all act as a unit to provide water service. As a result,

⁷ This volume is calculated as follows: The 44-foot diameter of the tank has an area of $0.25 \times \pi \times 44^2 = 1520$ square feet. $1520 \text{ sqft} \times 3.8 \text{ ft} \times 7.48 \text{ gallons/cubic foot} = 43,220$ gallons.

1 changes to any one of these components (*i.e.*, storage, distribution mains, supply
2 or pumping) are likely to impact the performance and operation of the other
3 facilities. In this case, the MCMUA exercised its contractual right to terminate the
4 agreement to sell water to the Company.⁸ This means that all of the water
5 supplied to 3,000 customers served by the Fenwick Tank must now come from
6 the Oak Place Booster in the southern area of the local distribution network. In
7 addition, without the supply from MCMUA at the northern part of the local
8 distribution system, the tank itself must be higher to overcome energy losses
9 within the distribution network between the tank and the northern part of the
10 distribution network in Mendham Borough and in Mendham Township.

11

12 **Q. PLEASE DESCRIBE THE EXISTING SITE ON WHICH THE FENWICK**
13 **TANK IS LOCATED.**

14 A. The Fenwick Tank is located on a property off Mendham Road in the Borough of
15 Bernardsville. The property is referred to as Block 5, Lot 5 and it includes an area
16 of 17,667 square feet. Access is provided through an easement.⁹ This parcel has
17 been the site of a water storage tank for 67 years. The property is owned by the
18 Company and, like the tank and surrounding water mains, is part of the Utility Plant
19 in Service used in determining rate base and the cost of water service to the
20 Company's customers.

21

⁸ Response to RCR-E-4, Attachment 1.
⁹ Petition, Page 6, Paragraph 10.

1 **Q. IN YOUR OPINION, IS THE EXISTING TANK NECESSARY FOR THE**
2 **SERVICE, CONVENIENCE OR WELFARE OF THE PUBLIC?**

3 A. Yes, it is. The existing tank provides for flow equalization and pressure
4 moderation during normal operating conditions and provides some gravity storage
5 for fire protection. It is my opinion that these are fundamental characteristics of
6 safe, adequate and proper water service. Without the tank, there would be no fire
7 protection reserve available during power outages and firefighting capabilities
8 would be diminished during events where the full pumping capacity is not
9 available at the Company's pumping stations (*e.g.*, during routine mechanical and
10 electrical maintenance or in the event of a component failure). Similarly, without
11 the tank, pressure could only be maintained through continuous and uninterrupted
12 operation of the pumping systems. Under such conditions, main breaks would be
13 more frequent, and energy would be wasted.

14

15 **5. PROPOSED TANK AND LAND USE**

16 **Q. PLEASE DESCRIBE THE PROPOSED REPLACEMENT FOR THE**
17 **FENWICK TANK.**

18 A. The Company proposes to construct a pedestal-style tank, sometimes referred to
19 as a "hydropillar," in the same location as the existing tank. The base elevation of
20 the tank will be at 754.3 feet and the top of the pedestal will be at 778.0 feet. This
21 is also the low-water elevation in the storage tank as the pedestal itself does not
22 store water. The proposed diameter of the pedestal is 42 feet 4 inches, or slightly

1 less than the existing 44-foot diameter of the existing tank. The new water storage
2 tank, which is to be constructed on top of the pedestal, has a proposed diameter of
3 64 feet and the proposed overflow elevation is at 818.0 feet.¹⁰ This is 46 feet
4 higher than the existing overflow. The tank will store a total of 750,000 gallons
5 of water.¹¹ Of this amount the lower 250,000 gallons represents the gravity fire
6 protection reserve, and the upper 500,000 gallons represents the peak demand
7 equalization volume.¹² The total volume of the tank is usable storage.

8

9 **Q. HAS THE NEW JERSEY DEPARTMENT OF ENVIRONMENTAL**
10 **PROTECTION (“NJDEP”) ADOPTED REGULATIONS REGARDING**
11 **THE PROVISION OF WATER DISTRIBUTION STORAGE?**

12 A. Yes.

13

14 **Q. DO THESE REGULATIONS REQUIRE THE COMPANY TO PROVIDE**
15 **DISTRIBUTION STORAGE?**

16 A. Yes. N.J.A.C. 7:10-11.11(a)(1) requires “Each public community water system
17 [to] provide storage for finished water as an integral part of its distribution system
18 whether the water system has its own source(s) of water or buys water from
19 another public community water system.”

20

¹⁰ Tank dimensions and elevations from Petition, Exhibit 1, Sheet D01.

¹¹ Op.Cit. Shields, Exhibit PT-1; Page 16, Line 7.

¹² Ibid; Page 16, Line 21 through Page 17, Line 3.

1 **Q. WHAT DO NJDEP’S REGULATIONS REQUIRE WHEN A WATER**
2 **DISTRIBUTION SYSTEM IS DESIGNED, AS THE SYSTEM IN**
3 **BERNARDSVILLE AND MENDHAM IS DESIGNED, TO PROVIDE FIRE**
4 **PROTECTION?**

5 A. N.J.A.C. 7:10-11.11(a)(2) requires the system to provide gravity storage. This
6 same rule also prohibits the use of hydropneumatic systems for fire protection.
7 Whether or not fire protection is provided, this rule also mandates that “the
8 location, size, type and elevation of the equalization reservoir, standpipe, or
9 elevated storage tank shall be such as to ensure that the distribution system meets
10 the pressure requirements established at N.J.A.C. 7:10-11.10(d).”

11
12 **Q. WHAT ARE THOSE PRESSURE REQUIREMENTS?**

13 A. N.J.A.C. 7:10-11.10(d)(1) Requires the system to “maintain a minimum pressure
14 of 20 pounds per square inch (psi) at street level under all flow conditions.”

15
16 **Q. ARE THERE ANY NJDEP RULES THAT ADDRESS THE TOTAL**
17 **DISTRIBUTION STORAGE VOLUME REQUIRED?**

18 A. Yes. For a system with interconnections and standby-power at its sources capable
19 of delivering at least 50% of the average production requirement, N.J.A.C. 7:19-
20 6.7(b)(v) requires the useable distribution storage volume to equal or exceed 50%
21 of the average daily water demand.

1

2 **Q. WHAT IS THE AVERAGE DAILY WATER DEMAND IN THIS**
3 **PORTION OF THE COMPANY’S WATER DISTRIBUTION SYSTEM?**

4 A. The average daily water demand is 1.0 Million Gallons per Day (“MGD”) and
5 this is expected to remain relatively constant through 2035.¹³

6

7 **Q. BASED ON THIS AVERAGE DAILY DEMAND, WHAT IS THE**
8 **MINIMUM STORAGE REQUIRED TO MEET NJDEP’S RULES AT**
9 **N.J.A.C. 7:19-6.7(B)(V)?**

10 A. A minimum of 500,000 gallons would be required to maintain service during
11 periods of extended stress.

12

13 **Q. IN YOUR EXPERIENCE HOW ARE STORAGE VOLUMES**
14 **DETERMINED IN PRACTICE?**

15 A. Typically, the total volume of storage required in a pressure gradient, such as the
16 distribution network serving this area must be adequate to equalize flows from the
17 sources of supply on the peak demand day. In addition, a separate calculation of an
18 emergency fire protection reserve is calculated based on the needs of the service
19 area.

20

¹³ Op. Cit., Shields, Exhibit PT-1; Exhibit G; Testimony of Dana Wright at Borough of Bernardsville Board of Adjustment Hearing, April 5, 2021, Page 67, Lines 4 through 14.

1 **Q. DID THE COMPANY FOLLOW THIS NORMAL PRACTICE IN**
2 **DETERMINING THE SIZE OF THE PROPOSED TANK?**

3 A. Yes. The equalization volume was determined to equal 20% of the projected peak
4 day demand of 2.5 MGD and the fire protection reserve was calculated using ISO
5 guidelines for fire protection requirements in the service area.¹⁴

6

7 **Q. WHAT IS THE LAND USE CURRENTLY ASSOCIATED WITH THE**
8 **PROPERTY REFERRED TO AS BLOCK 5, LOT 5?**

9 A. This 0.4-acre lot has been the host to a water distribution storage tank for the past 67
10 years.

11

12 **Q. IF THE PROPOSED TANK IS BUILT, WILL THE FUNCTION OF BLOCK**
13 **5, LOT 5 CHANGE?**

14 A. No. It will continue to host a water distribution storage tank.

15

16 **Q. IN YOUR OPINION, IS THE PROPOSED TANK NECESSARY FOR THE**
17 **SERVICE, CONVENIENCE OR WELFARE OF THE PUBLIC?**

18 A. Yes, it is. The proposed tank will provide an adequate volume for flow equalization
19 and pressure moderation during normal operating conditions, and it will provide

¹⁴ Op. Cit. Shields, Exhibit PT-1, Page 19, Line 2 through 6.

1 adequate gravity storage for fire protection. As I have stated previously, it is my
2 opinion that these are fundamental characteristics of safe, adequate and proper water
3 service. Without the proposed tank, there would be no fire protection reserve
4 available during power outages and firefighting capabilities would be diminished
5 during events where the full pumping capacity is not available at the Company's
6 pumping stations (*e.g.*, during routine mechanical and electrical maintenance or in
7 the event of a component failure). Similarly, without the proposed tank, which will
8 meet the minimum extended stress volume required by NJDEP rules and will also
9 provide adequate equalization volume for peak customer demands, pressure could
10 only be maintained through continuous and uninterrupted operation of the pumping
11 systems.

12
13 **6. ALTERNATIVE TANK SITES**

14 **Q. IS IT YOUR UNDERSTANDING AND BELIEF THAT THE COMPANY**
15 **CONDUCTED AN ADEQUATE SEARCH FOR ALTERNATIVE TANK**
16 **SITES?**

17 A. Yes. The Company identified 46 parcels that were at a sufficient elevation to host
18 the new tank. Elevation is the principal attribute determining the adequacy of a
19 potential tank site because the elevation of the tank and the water stored in the tank
20 is what establishes the pressure at any point in the distribution system under both
21 static and dynamic flow conditions. The parcels that were considered are listed in

1 the response to RCR-E-35. These parcels are in existing residential areas where
2 there is no existing water storage use, or the parcels are located in areas barred from
3 development by Green Acres restrictions.

4

5 **Q. IGNORING FOR THE MOMENT THAT THE OTHER PARCELS AT**
6 **ADEQUATE ELEVATION MIGHT NOT BE AVAILABLE OR**
7 **BUILDABLE FOR A VARIETY OF REASONS, ARE THERE ANY OTHER**
8 **CONSIDERATIONS THAT PREVENT THE ALTERNATIVE LOCATIONS**
9 **FROM OFFERING AN EQUIVALENT PUBLIC BENEFIT?**

10 A. Yes. First, the Company does not own any of the alternate lots. If any of these
11 alternate lots could be obtained and permitted, the acquisition of the land would add
12 a potentially significant cost to the project. Additional land acquisition costs would
13 represent an additional investment in utility plant that would under Board of Public
14 Utilities rules be borne by ratepayers through higher rates for service. In other
15 words, moving the proposed tank from the objector's back yard to someone else's
16 back yard would add an unnecessary cost to rates paid by the public served by the
17 Company.

18 In addition, it is apparent from inspection of the exhibits provided in RCR-
19 E-35 that the alternative sites are not located near existing water transmission mains.
20 So, while the proposed tank can be easily connected to a fully functioning water
21 transmission system, which is necessary to allow the tank to fill and empty, the
22 alternate sites would require the construction of additional, otherwise unnecessary

1 water transmission mains. Here again, moving the tank to a new location is contrary
2 to the public interest. This would result in greater costs to be recovered in customer
3 rates along with the disturbance of additional public streets and rights-of-way to
4 properly connect the new tank site to the distribution system.

5 Furthermore, some of the alternate sites are proximate to the Tower
6 Mountain and Oak Place Booster pumping stations. By locating the tank close to the
7 source of supply to the water distribution system, the benefit of multi-directional
8 flow during peak demand periods and emergencies is lost. To develop an alternate
9 distribution system configuration capable of providing similar resilience and
10 redundancy would certainly, in my opinion, require the construction of yet additional
11 distribution mains to the north of these sites to ensure adequate flow, pressure and
12 resilience in providing service.

13

14 **Q. IS IT YOUR OPINION THAT NO ALTERNATIVE SITE OR SITES ARE**
15 **REASONABLY AVAILABLE TO ACHIEVE AN EQUIVALENT PUBLIC**
16 **BENEFIT?**

17 A. Yes. To the extent that any alternative site might satisfy the elevation criteria to
18 provide adequate pressure, the acquisition of the site and the construction of
19 additional water mains to make the site equivalent to the existing parcel at Block 5,
20 Lot 5 would add potentially significant costs to the project and that would burden
21 the public with even higher water rates.

22

1 **Q. GIVEN THIS, WHAT IS YOUR RECOMMENDATION IN THIS MATTER?**

2 A. In the interest of the Company's ratepayers, it is my opinion that the relief
3 requested by the Company should be granted.

4

5 **Q. DOES THIS COMPLETE YOUR TESTIMONY AT THIS TIME?**

6 A. Yes, it does, though I reserve the right to update my testimony if needed.

7

**APPENDIX A - Qualifications
Of
Howard J. Woods, Jr., P.E.**

KEY EXPERIENCE

Mr. Woods has over 45 years of experience in water and wastewater utility engineering and operations. In his career he has worked for US EPA, engineering consultants and in numerous senior engineering and operational roles at a large investor-owned utility. His experience is well rounded, covering all aspects of public water and wastewater operations and management including outsourcing, acquisitions, maintenance, water production, filtration, distribution, water quality, wastewater collection and treatment, regulatory compliance and safety.

Mr. Woods managed numerous water and wastewater management contracts. He has assisted clients in outsourcing management activities and transferring ownership of complete utility systems. He has advised clients on alternative contracting approaches and reduced operating costs by renegotiating plant operations contracts. He has helped clients reduce operating expenses and he has provided expert testimony in construction arbitrations, contamination incidents and utility rate and service proceedings.

EDUCATION

Masters of Civil Engineering, Water Resources – Villanova University

Bachelor of Civil Engineering (cum laude) – Villanova University

ACCOMPLISHMENTS

- Directed and managed the procurement process leading to the sale of a municipal wastewater system in Southeastern Pennsylvania. The sale of the Upper Dublin Township Sanitary Sewer System will yield \$20,000,000 for a system serving approximately 8,000 connections and having annual revenues of \$3,000,000. Advised the Township on alternative outsourcing and contracting approaches, reduced interim operating expenses by 30% prior to the sale by renegotiating the plant operations contract.
- Prepared an analysis of ownership alternatives for Lower Makefield Township's sanitary sewer collection system. Managed a procurement process that led to the receipt of a \$17 million bid for the potential sale of a system serving 10,700 residential and commercial customers.
- Assessed an existing public private partnership contract and future contracting alternatives for the Jersey City Municipal Utilities Authority (JCMUA). Recommended alternative contract terms and assisted JCMUA in negotiating a new ten-year operations agreement saving approximately \$3,000,000 per year.
- Assisted Greater Ouachita Water Company, a non-profit Louisiana water and sewer utility, in evaluating operating contract alternatives. Provided assistance in identifying qualified operators to be invited to bid a multi-year full-service operating contract. Assisted in evaluating bids and in contract negotiations.

ACCOMPLISHMENTS (CONTINUED)

- Completed an independent assessment of ownership and operating alternatives for the Township of Sparta water utility. The study evaluated current operating and financial conditions of the utility and considered two alternative service delivery approaches: contract operation and a sale of the system to an investor-owned utility.
- Completed an assessment of the financial and operating impacts of a proposal by a Pennsylvania municipality to dissolve its municipal water and sewer authority. The authority served multiple political subdivisions and dissolution would have resulted in regulation by the Pennsylvania Public Utility Commission. The additional regulatory burdens identified and limitations on municipal financing capacity resulted in a recommendation to retain authority ownership and operations.
- Completed an analysis of ownership alternatives for the Bristol Township Sewer Department. Reviewed capital needs and financing arrangements, rate structure and system revenues, operational costs and regulatory compliance issues. Assessed potential interest in the acquisition of the system by other municipal and investor-owned entities and assessed the possible impact of a sale on rates and service quality. The study recommended retention of the system by the Township and offered recommendations to reduce costs and improve staffing levels.
- Completed the assessment of a potential water utility acquisition by a Pennsylvania Municipal Authority. Assisted the Authority in developing a bid proposal for the acquisition and assessing the impact on revenue requirement and consumer rates resulting from the acquisition.
- Provided litigation support to Cornwall Borough Municipal Authority in its efforts to prevent Cornwall Borough from dissolving the Authority. Provided expert testimony on the service and financial impacts of dissolving the Authority. Developed capital plans for the Authority and provided expert testimony regarding the need to construct certain fire protection and other distribution improvements.
- Completed an assessment of an investor-owned utility offer to acquire the assets of Pennsylvania Municipal Water & Sewer Authority. Evaluated the acquisition and rate proposal, developed independent assessments of the value of the assets consistent with Pennsylvania Act 12 and prepared recommendations for the Authority's use in considering the proposal.
- Completed an evaluation of the revenue requirement associated with the decommissioning of a wastewater treatment plant and the diversion of wastewater to a regional treatment works for the North Wales Water Authority. Assessed the rate impact to customers of potentially retaining and improving an existing wastewater treatment plant and the rate impact of joining a regional treatment system. The evaluation supported the decision to regionalize the sewage treatment function.
- Developed a risk assessment model for a Pennsylvania Municipal Utilities Authority to allow the Authority to prioritize investments on numerous wells threatened by regional perfluorinated compound contamination. The assessment balanced risk of contamination, cost and feasibility of providing treatment, the use or regional alternative supplies owned by the Authority and regional interconnections/system acquisitions.
- Assisted the Banco Gubernamental de Fomento para Puerto Rico, Autoridad para el

ACCOMPLISHMENTS (CONTINUED)

Financiamiento de la Infraestructura de Puerto Rico and Pricewaterhouse-Coopers in developing a new operating contract for the Puerto Rico Aqueduct and Sewer Authority (PRASA). The contract was developed, bid and awarded in less than six months, cutting the normal procurement time by nearly two-thirds. The value of the contract was \$300 million per year.

- Completed an independent assessment of the planning and engineering decision making for a major water treatment plant renovation project undertaken by Aquarion Water Company of Connecticut in Stamford Connecticut. Evaluated process selection decisions, project sizing and regulatory compliance issues and testified before the Connecticut Department of Public Utility Control on the findings of the evaluation.
- Completed audits of water production operations and water quality management functions at Aquarion Water Company of Connecticut, Aquarion Water Company of Massachusetts and Aquarion Water Company of New Hampshire. Assessed operational procedures and staffing levels, reviewed risk management plans including emergency response plans and dam safety programs, evaluated programmed and preventative maintenance systems and developed recommendations to assist the Company in lowering the cost of service while reducing risk and improving reliability.
- Completed an audit of the watershed and environmental management functions at Aquarion Water Company of Connecticut. Assessed watershed management, monitoring and operational procedures, reviewed compliance tracking systems, reviewed risk management strategies and developed recommendations to assist the Company in reducing risk and improving reliability and watershed protection efforts.
- Completed a management audit of the water distribution function at Aquarion Water Company of Connecticut. Evaluated system monitoring and maintenance practices, assessed the impact of the use of contract maintenance and construction services to reduce Company workforce levels. Developed recommendations to improve the Company's programmed and preventative maintenance systems, corrosion control procedures and non-revenue water control programs.
- Completed a management audit of the engineering and planning functions at Aquarion Water Company of Connecticut. Evaluated the Company's planning practices and procedures and developed recommendations to assure the efficient application of capital to the renewal, replacement and expansion of the Company's extensive utility plant assets.
- Assisted Greater Ouachita Water Company, a Louisiana non-profit water and sewer utility, in identifying the cause of water quality complaints resulting from poor color removal filtration processes. Recommended improvements to minimize capital modifications of the chemical feed, filter backwash and spent wash water treatment systems.
- Completed a Comprehensive Technical Assistance (CTA) project for the City of New Brunswick (NJ) Water Utility. The CTA, which was Ordered to be completed by the New Jersey Department of Environmental Protection, developed operating procedures to rectify numerous performance limiting factors that contributed to several drinking water quality issues and Safe Drinking Water Act Rules compliance issues. Completion of the CTA satisfied a major component of the Consent Order.

ACCOMPLISHMENTS (CONTINUED)

- Provided ongoing technical and operations assistance to the Shelter Island Heights Property Owners Corporation related to the operation and maintenance of the community water and sewer utilities. Developed recommendations for asset maintenance and renewal as well as employee safety.
- Completed a Vulnerability Assessment for a municipally-owned public water system in northern New Jersey. Organized, planned and conducted the assessment using the RAM-WSM methodology. Evaluated existing physical protection systems at utility facilities, developed threat assessments and adversary sequence analyses, prepared recommendations to reduce risk.
- Completed an energy management evaluation for the Elmira (NY) Water Board and provided operator training on energy management strategies. Recommendations from the study allowed the client to reduce energy expenses by 30% through a series of operational modifications.
- Completed an energy management audit of the Pittsburgh Water and Sewer Authority and identified strategies for reducing power consumption. The results of this investigation provided the foundation for the Authority and its contract manager to develop and implement more effective maintenance and operations procedures to reduce energy costs.
- Served as an expert witness in a matter involving the diversion of service by a large commercial customer of Atlantic City Municipal Utilities Authority (ACMUA). Statistically analyzed customer water use and billing records by relating water use variables (e.g. weather, occupancy rates, and restaurant output) to recorded consumption. Identified periods of service diversion and assisted ACMUA in the collection of revenues and penalties due.
- Served as an expert witness in a matter involving excess billing of a large commercial customer of a New Jersey public utility. Statistically analyzed usage patterns over a ten-year period and identified periods of excess billing. Assisted the customer in negotiating a \$50,000 settlement of the dispute.
- Provided litigation support in a dispute involving cost of service allocations made by Erie City Water Authority (ECWA) in establishing rates covering a ten-year period beginning in 2004. Prepared an expert report addressing the cost allocation methods used by ECWA and demonstrated that the determination of the ECWA revenue requirement was fair and reasonable and that the allocation methods used to assign costs to various rate classes were done using reasonable professional judgment and standard professional care.
- Provided litigation support in a dispute involving water rates billed by Passaic Valley Water Commission to retail customers in the Borough of Lodi. Reviewed past rate setting practices and related rate covenants in the Lodi water system lease, prepared expert testimony and assisted the Passaic Valley Water Commission in developing rates consistent with the Court's Order.
- Developed a rate study and assisted in the renegotiation of a sewer service agreement between Ridgelyfield Borough and Palisades Park Borough. The rate study formed the basis of a settlement of ongoing litigation and provided a cost allocation methodology incorporated into a new service agreement between the municipalities.
- Developed rate studies for the Village of Ridgewood Water Utility for 2010 through

ACCOMPLISHMENTS (CONTINUED)

2016 to satisfy a Court Order to re-evaluate and re-adopt rate resolutions in response to a Complaint by Midland Park, Glen Rock and Wycoff. Developed allocation factors for shared municipal services and developed the revenue requirement for each year for the Water Utility. Produced a final rate design consistent with the Court Order.

- Developed a model of the major water resources facilities in the Passaic, Pompton, Ramapo and Hackensack River Basins that allows the calculation of the safe and dependable yield of the Wanaque/Monksville, Point View and Oradell Reservoir systems under varying drought conditions. The model is being used by Passaic Valley Water Commission to evaluate long-term water supply management strategies and to plan for future water supply needs.
- Assisted New York City Department of Environmental Protection in compiling a report on the estimated safe yield of the City water supply reservoir system. A current assessment of safe yield was required by agreement of the Parties to the 1954 US Supreme Court Decree governing the use and export of water from the Delaware River Basin. Provided additional consulting assistance on plans to assure system reliability during planned repairs to the Roundout-West Branch Tunnel, an aqueduct that transports up to 800 million gallons of water per day to the City from the Delaware Basin reservoir system.
- Developed an analysis of the costs of the Hickory Log Creek Reservoir and the yield sharing arrangements between the City of Canton and the Cobb County-Marietta Water Authority. Developed recommended methods to assess the impact of US Army Corps of Engineers operating policies on future operating and capital cost allocations.
- Prepared a long-range water supply needs forecast for the Passaic Valley Water Commission. Analyzed water use patterns within the Commission's retail service area and for over two-dozen large contract customers. Produced population forecasts for the service area and individual water demand forecasts for each contract sale-for-resale customer using statistical and numeric forecasting techniques. The forecast projects total annual demand, average day, maximum month and maximum day demands and forms the basis for other ongoing facility and operations planning efforts.
- Prepared a long-range water supply needs forecast for the North Wales Water Authority. Analyzed water use patterns within the Authority's retail service and identified the water supply requirement for the Authority's share in a regional water supply system. Produced customer forecasts for the service area and individual water demand forecasts for large industrial customers and existing and potential wholesale water customers. Applied statistical and numeric forecasting techniques to assess trends in unit water use for each customer class. The forecast projects total annual demand, average day, maximum month and maximum day demands and forms the basis for other ongoing facility and operations planning efforts.
- Developed a Water Allocation Permit renewal and extension application for the Passaic Valley Water Commission. Secured a new 25-year permit for the diversion of surface water from the Pompton and Passaic Rivers. The new water diversion permit for the Commission supports more flexible operations and more efficient source utilization. The Commission serves a retail service population of 325,000 and effectively serves an additional 260,000 people through sale-for-resale connections.

ACCOMPLISHMENTS (CONTINUED)

- Prepared a cost of service allocation study for Passaic Valley Water Commission, a regional water system that serves a large urban retail service population and a significant outlying area through direct retail and wholesale water sales. Allocated costs based on standard methodologies to Owner Cities, External Cities Retail and Wholesale classes of service. The Commission has annual revenues in excess of \$71 million.
- Prepared a cost of service allocation study for three Pennsylvania Municipal Utilities Authorities considering a joint water supply expansion project. Evaluated and allocated anticipated construction and operating costs for the plant expansion and assigned costs of existing facilities using a commodity-demand allocation method. Developed a recommended tariff design to allow for the fair recovery of prospective costs associated with the expanded facilities.
- Prepared a cost allocation study and tariff design study for Bedminster Municipal Utilities Authority. The study developed an integrated five-year financial plan for the Authority and allocated the revenue requirement among water and sewer services. Rates were developed to allow the Authority to properly recover costs from its various water and sewer customer classes.
- Developed a commercial rates study for Whitemarsh Township Authority that resulted in the modernization of the Authority's commercial rate structure. A system comprised of 33 different rate costs was replaced with a uniform rate structure including a fixed service charge based on water meter capacity ratios and volumetric changes for the quantity of water actually used.
- Developed a residential rates study for Whitemarsh Township Authority that evaluated the cost/benefits of converting a fixed-rate EDU tariff to a volumetric tariff. Developed recommendations for new rates for the ensuing five-years.
- Developed an initial tariff study for Branchville Borough. The Borough had constructed a new community sanitary sewer system to replace hundreds of on-lot disposal systems and small, individual wastewater treatment systems located throughout the Borough. Using engineer's estimates of operating costs, developed a total revenue requirement and allocated that revenue requirement to three classes of customer service. Developed an initial rate structure designed to recover the projected full revenue requirement.
- Prepared a cost of service allocation study for Southeast Morris County Municipal Utilities Authority, a regional water system that serves a suburban retail service population and several wholesale water customers. Allocated costs based on standard methodologies to various classes of residential, commercial industrial and wholesale service. Developed a plan to move each service class to full-cost pricing over time.
- Developed a five-year comprehensive business plan for Passaic Valley Water Commission. This plan moved the Commission from an annual operating budget to a five-year budget that links operating costs, capital construction and debt service requirements to customer growth and revenue requirements and rates. The plan was instrumental in obtaining an improved bond rating and positioning the Commission to undertake a major capital improvement program.

ACCOMPLISHMENTS (CONTINUED)

- Developed a five-year comprehensive business plan for the North Wales Water Authority. This plan established a rolling five-year operating and capital budget that links operating costs, capital construction and debt service requirements to customer growth and revenue requirements and rates. The plan was instrumental in maintaining current rates while also maintaining the Authority's AA bond rating.
- Served as an expert witness in an arbitration involving a dispute between a New Jersey municipal water department and A.C. Schultes, Inc., a well contractor. Assisted A.C. Schultes in supporting its claim for a contract modification and the recovery of unanticipated expenses. The arbitrator awarded the contractor 100% of its cost claim.
- Served as an expert witness in a matter involving the alleged contamination of a New Jersey municipal water system with heavy metals and organic chemicals. Reviewed over 38,000 discrete water quality sample results, analyzed the operational records of the system and developed a computer model (EPANET2) depicting water flow and water quality changes over a period spanning two decades. Assisted the client in successfully defeating a threatened class action lawsuit at the certification level.
- Served as an expert witness in a matter involving the alleged contamination of nearly 600 private wells in an area near Fairbanks, Alaska. Evaluated alternatives for the provision of alternate water supplies including the extension of an investor-owned water system, a publicly-owned water system, and a variety of on-site treatment and supply options. Assisted in the defense of the former owner of the site where the contamination was later alleged to have originated.
- Served as a mediator involving a dispute between the Long Beach Township Water Department and Don Siegel Construction Co., Inc., a pipeline installation contractor. Assisted the parties in resolving various construction cost claims and in interpreting the contract construction documents. Litigation over the disputes was avoided.
- Assisted a regional developer in obtaining wastewater planning approval for a project in an area determined to be in an "overload" condition by Pennsylvania DEP. This effort required the facilitation of negotiations between regional wastewater entities for wastewater conveyance and treatment services, expert consulting with a municipality and PA DEP concerning the municipality's update to its Act 537 facilities plan, and coordination with other engineering consultants to secure final permit approvals.
- Developed a review of alternatives for the renovation or replacement of the Ridge Road Reservoir for Perkasio Regional Authority. Analyzed alternatives for reconstructing or replacing an in-ground water distribution reservoir. Developed a scope of services for a site geotechnical evaluation and assessed the potential cost of various renewal strategies.
- Reviewed engineering plans and operational practices in numerous water and wastewater rate adjustment proceedings and quality of service proceedings for the New Jersey Division of Rate Counsel. Assessed utility engineering design and construction plans, developed alternatives to utility proposed projects, and evaluated the utility companies' ability to render safe, adequate and proper water or wastewater service. Provides expert testimony in the following utility rate, franchise expansion and service quality proceedings:

ACCOMPLISHMENTS (CONTINUED)

- Acacia Lumberton Manor Fire Service Complaint
BPU Docket No. WC01080495
- Andover Utility Company
BPU Docket WR17070726
- Applied Waste Water Management Rates
BPU Docket No. WR03030222
- Applied Waste Water Management Base Rates
BPU Docket No. WR08080550
- Applied Waste Water Management Franchise
BPU Docket No. WE03070530
- Applied Waste Water Management Andover Franchise
BPU Docket No. WE04111466
- Applied Waste Water Management Hillsborough Franchise
BPU Docket No. WE04101349
- Applied Waste Water Management Oakland Franchise
BPU Docket No. WE04111467
- Applied Waste Water Management Union Twp Franchise
BPU Docket No. WE050414
- Applied Waste Water Management Tewksbury Franchise
BPU Docket No. WR08100908
- Aqua NJ Freehold Franchise Extension Review
BPU Docket WE09120965
- Aqua NJ Pine Hill Franchise
BPU Docket No. WE05070581
- Aqua NJ Upper Freehold Franchise
BPU Docket No. WE05100822
- Aqua NJ Readington Wastewater Franchise
BPU Docket No. WE07030224
- Aqua New Jersey Base Rate Case
BPU Docket No. WR07120955
- Aqua New Jersey Acquisition of Bloomsbury Water
BPU Docket WE09050360
- Aqua New Jersey Acquisition of Harkers Hollow Water
BPU Docket WM09020119
- Aqua New Jersey Base Rate Adjustment
BPU Docket No. WR09121005
- Aqua New Jersey Base Rate Adjustment
BPU Docket No. WR11120859
- Aqua New Jersey Base Rate Adjustment
BPU Docket WR14010019
- Aqua New Jersey Base Rate Adjustment
BPU Docket WR18121351
- Aqua New Jersey DSIC Foundational Filing
BPU Docket No. WR12070685
- Aqua New Jersey Byram Franchise & Acquisition
BPU Docket No. WE15080957

ACCOMPLISHMENTS (CONTINUED)

- Aqua New Jersey Cliffside Park Acquisition
BPU Docket No. WE16040307
- Aqua New Jersey Acquisition of Oakwood Village
BPU Docket No. WM16080739
- Aqua New Jersey Base Rate Adjustments
BPU Docket No. WR16010089
- Aqua NJ Distribution System Improvement Charge
Foundational Filing
BPU Docket No. WR16010090
- Atlantic City Sewerage Company Base Rate Adjustment
BPU Docket No. WR09110940
- Atlantic City Sewerage Company Base Rate Adjustment
BPU Docket No. WR11040247
- Atlantic City Sewerage Company Base Rate Adjustment
BPU Docket No. WR14101263
- Bayonne MUA – United Water NJ/ Kohlberg, Kravis, Roberts Joint
Venture Operations & Financing Agreement
BPU Docket No. WM12080777
- Bayview Water Company Rates
BPU Docket No. WR01120818
- Camden and United Water Environmental Services,
Inc. Management Services Agreement Modifications
BPU Docket No. WM12050457
- Borough of Haledon Rates
BPU Docket No. WR01080532
- City of Orange Privatization Review
BPU Docket No. WO03080614
- Crestwood Village Loan Approval
BPU Docket No. WF04091042
- Crestwood Village Water Co Base Rates
BPU Docket No. WR07090706
- Elizabethtown Water Co. v. Clinton Board of Adjustment
BPU Docket No. WE02050289
- Elizabethtown Water Company Rates
BPU Docket No. WR03070510
- Elizabethtown Water Company Franklin Franchise
BPU Docket No. WE05020125
- Elizabethtown Water Company Purchased Water Adjustment Clause
BPU Docket No. WR04070683
- Environmental Disposal Corporation Main Extension Agreement
BPU Docket No. WO04091030
- Environmental Disposal Corporation Rates
BPU Docket No. WR04080760
- Environmental Disposal Corporation Rates
BPU Docket No. WR07090715
- Environmental Disposal Corporation Change in Control
BPU Docket No. WM15040492

ACCOMPLISHMENTS (CONTINUED)

- Fayson Lake Water Company Rates
BPU Docket No. WR03040278
- Fayson Lake Water Company Base Rates
BPU Docket No. WR07010027
- Fayson Lake Water Company Base Rates
BPU Docket WR14050405
- Fayson Lake Water Company Base Rates
BPU Docket WR17101041
- Gordon's Corner Water Company Rates
BPU Docket No. WR03090714
- Gordons Corner Water Co Base Rate Adjustment
BPU Docket No. WR10060430
- Gordons Corner Water Co Base Rate Adjustment
BPU Docket No. WR12090807
- Gordons Corner Water Co Base Rate Adjustment
BPU Docket WR14040325
- Gordons Corner Water Co Base Rate Adjustment
BPU Docket WR18030268
- Jensens Deep Run Franchise Transfer
BPU Docket No. WE10070453
- Lake Valley Water Company Rates
BPU Docket No. WR04070722
- Mahwah Tank Maintenance Privatization
BPU Docket No. WO15050548
- Middlesex Water Company Rates
BPU Docket No. WR03110900
- Middlesex Water Company Rates
BPU Docket No. WR05050451
- Middlesex Water Company Base Rates
BPU Docket No. WR07040275
- Middlesex Water Co Transmission Main Prudency Review
BPU Docket No. WO08020098
- Middlesex Water Company Base Rates
BPU Docket No. WR09080666
- Middlesex Water Company DSIC Foundational Filing
BPU Docket No. WR12111021
- Middlesex Water Company Base Rates
BPU Docket No. WR12010027
- Middlesex Water Co DSIC Foundational Filing
BPU Docket No. WR14050508
- Middlesex Water Company Base Rate Adjustment
BPU Docket No. WR15030391
- Middlesex Water Company Base Rate Adjustment
BPU Docket No. WR17101049
- Montague Water Company Rates
BPU Docket No. WR03121034

- Montague Sewer Company Rates

ACCOMPLISHMENTS (CONTINUED)

- BPU Docket No. WR03121035
- Montague Sewer Company Rates
BPU Docket No. WR05121056
- Montague Water Company Acquisition
BPU Docket No. WM10060432
- Montague Water & Sewer Company Rates
BPU Docket No. WR12110983
- Mount Holly Water Company Rates
BPU Docket No. WR03070509
- Mount Olive Villages Water & Sewer Franchise
BPU Docket No. WE03120970
- Mount Olive Villages Sewer Base Rate Adjustment
BPU Docket No. WR16050391
- Mount Olive Villages Water Base Rate Adjustment
BPU Docket No. WR16050390
- New Jersey American Water Company Rates
BPU Docket No. WR03070511
- New Jersey American Water Company Rates
BPU Docket No. WR06030257
- New Jersey American Water Acquisition of Mt.
Ephraim and Approval of Municipal Consent
BPU Docket No. WE06060431
- New Jersey American Water Purchased Water Adjustment Clause
BPU Docket No. WR05110976
- New Jersey American Water Company – Mantua Franchise
BPU Docket No. WE07060372
- New Jersey American Water Co – Rocky Hill Franchise
BPU Docket No. WE07020103
- New Jersey American Water Company Rates
BPU Docket No. WR08010020
- New Jersey American Hopewell Township Franchise
BPU Docket No. WE07120981
- New Jersey American Water Co/City of Trenton
Joint Petition for Approval of the Sale of Water System
BPU Docket No. WE08010063
- New Jersey American Water Company Petition for Approval of a
Distribution System Improvement Charge (DSIC)
BPU Docket No. WO08050358
- New Jersey American Water Co Management Audit
BPU Docket No. WA09070510
- New Jersey American Water Base Rate Adjustment
BPU Docket No. WR10040260
- New Jersey American Water Company Franklin Franchise Review
BPU Docket No. WE11070403
- New Jersey American Water Company Base Rate Adjustment
BPU Docket No. WR11070460
- New Jersey American Water Company Base Rate Adjustment
BPU Docket No. WR15010035

ACCOMPLISHMENTS (CONTINUED)

- New Jersey American Water Company DSIC Foundational Filing
BPU Docket No. WR15060724
- New Jersey American Water – Eastampton Franchise Review
BPU Docket No. WE17020139
- New Jersey American Water – Shorelands Water Co Acquisition
BPU Docket No. WM16101036
- New Jersey American Water Co Howell Franchise Review
BPU Docket No. WE17111148
- New Jersey American Water Base Rate Adjustment
BPU Docket No. WR17090985
- New Jersey American Water Acquisition of Mt. Ephraim Sewer
BPU Docket WM19010117
- New Jersey Natural Gas Rates
BPU Docket No. GR07110889
- Oakwood Village Sewer Change in Control
BPU Docket No. WM07070535
- Oakwood Village Sewer System Change in Control
BPU Docket No. WM15091006
- Parkway Water Company Rates
BPU Docket No. WR05070634
- Pinelands Water Company Rates
BPU Docket No. WR03121016
- Pinelands Wastewater Company Rates
BPU Docket No. WR03121017
- Pinelands Water Company Rates
BPU Docket No. WR08040282
- Pinelands Wastewater Company Rates
BPU Docket No. WR08040283
- Pinelands Water Company Rates
BPU Docket No. WR120807342
- Pinelands Wastewater Company Rates
BPU Docket No. WR12080735
- Pinelands Water Company Rates
BPU Docket No. WR15101200
- Pinelands Wastewater Company Rates
BPU Docket No. WR15101202
- Pinelands Water Company Rates
BPU Docket No. WR19030417
- Pinelands Wastewater Company Rates
BPU Docket No. WR19030418
- Rahway Operational Services Agreement Review
BPU Docket No. WO16070678
- Rock GW, LLC Determination of Applicability of Board Regulation
BPU Docket No. WO08030188

- Rock GW, LLC Determination of Applicability of Board Regulation
BPU Docket No. WO10100739
- Roxbury Water Company Rates

ACCOMPLISHMENTS (CONTINUED)

- BPU Docket No. WR09010090
- Roxciticus Water Company Change in Control
BPU Docket No. WM15080982
- SB Water & Sewer Company Acquisition
BPU Docket No. WM16030197
- Seabrook Water Company Franchise
BPU Docket No. WC02060340
- Seaview Harbor Water Company Change in Control
BPU Docket No. WM13100957
- Shorelands Water Company Rates
BPU Docket No. WR04040295
- Shorelands Water Company Base Rates
BPU Docket No. WR10060394
- Shore Water Company Rates
BPU Docket No. WR09070575
- South Jersey Water Supply Change in Control
BPU Docket No. WM07020076
- Suez Arlington Hills Wastewater Rates
BPU Docket No. WR16060510
- Suez Water NJ DSIC Foundational Filing
BPU Docket No. WR13030210
- Suez Water NJ Borstad Water Company Acquisition
BPU Docket No. WE15111247
- Suez Water New Jersey Base Rate Adjustment
BPU Docket No. WR15101177
- Suez Water Toms River Base Rate Adjustments
BPU Docket No. WR15020269
- Suez Water Toms River DSIC Foundational Filing
BPU Docket WR13111128
- Suez Water NJ – USG Cottonwood Agreement
BPU Docket No. WR15070856
- Suez Water NJ Electrical Efficiency Contract Eval.
BPU Docket No. WO17050494
- Suez Water Princeton Meadows Deferred Accounting
BPU Docket WF17030186
- SUEZ Water NJ Acquisition of West Milford MUA
BPU Docket WM17111189
- SUEZ Water NJ Base Rate Adjustment
BPU Docket WR18050593
- SUEZ Water NJ Acquisition of Independence MUA
BPU Docket WM18010008
- SUEZ Water NJ Acquisition of West Milford MUA
BPU Docket WM17111189

- SUEZ Water NJ Acquisition of East Brookwood
BPU Docket WM18040449
- United Water Acquisitions Evaluation
BPU Docket No. WM02060354

ACCOMPLISHMENTS (CONTINUED)

- United Water Arlington Hills Franchise
BPU Docket No. WE07020084
 - United Water Arlington Hills Sewerage Base Rates
BPU Docket No. WR08100929
 - United Water New Jersey Base Rates
BPU Docket No. WR07020135
 - United Water New Jersey Base Rates
BPU Docket No. WR08090710
 - United Water New Jersey Base Rates
BPU Docket No. WR11070428
 - United Water New Jersey DSIC Foundational Filing
BPU Docket No. WR12080724
 - United Water New Jersey Management Audit
BPU Docket: WA05060550
 - United Water New Jersey Affiliate Transaction Review – JPI Painting
BPU Docket No. WO10060410
 - United Water New Jersey Affiliate Transaction
Review – Utility Service Contract
BPU Docket No. WO10060409
 - United Water New Jersey Mt Arlington Franchise
Extension Review
BPU Docket No. WE09121006
 - United Water New Jersey Vernon Township Franchise
Extension Review
BPU Docket WE10110870
 - United Water New Jersey Vernon Township Franchise
Extension Review
BPU Docket WE11030155
 - United Water Great Gorge/Vernon Sewer Base Rates
BPU Docket No. WR10100785
 - United Water Toms River Base Rates
BPU Docket No. WR080830139
 - United Water Toms River Base Rates
BPU Docket No. WR12090830
 - United Water West Milford Sewerage Base Rates
BPU Docket No. WR08100928
 - Village Utility Inc Franchise and Initial Tariff
BPU Docket 180808926
-
- Assisted the New Jersey Division of Rate Counsel in assessing drought conditions effecting water utilities in New Jersey during the 2002 drought. Analyzed proposals for water supply interconnections to mitigate drought impacts, developed position statements regarding pricing alternatives, and provided a critique of State water supply management initiatives prior to and during drought conditions.
 - Assisted the New Jersey Division of Rate Counsel in assessing the need for a Distribution System Improvement Charge (DSIC) to allow regulated water utilities to accelerate the recovery of capital investments in water distribution assets (BPU Docket WO10090655). Provided financial analyses of current and prospective distribution renovation programs. Reviewed and commented on draft language for a

ACCOMPLISHMENTS (CONTINUED)

generic rule making.

- Assisted the Delaware Public Advocate in assessing drought conditions effecting water utilities in northern New Castle County during the 2002 drought (PSC Docket No. 323-02). Reviewed water utility operations prior to and during the drought emergency, assessed the effectiveness of use curtailments, developed recommendations to assure proper, cost-effective resources management for future drought conditions.
- Assisted the Delaware Public Service Commission in a determination of rate base for Artesian Water Company in PSC Docket 08-96. Evaluated selected plant facilities and proposed projects to determine the need to impute revenues for under-utilized facilities in establishing new base rates.
- Assisted the Delaware Public Service Commission in an evaluation of the Initial Tariff filing submitted by Tidewater Environmental Services, Inc. (PSC Docket No. 11-274WW) for wastewater service in a development known as “The Ridings.” Evaluated projected operating expenses and rate base claims and developed recommendations that avoided a potential 17.5% rate increase.
- Prepared an assessment of the water supply capacity certification and water conservation plan submitted by United Water Delaware in PSC Docket 09-282 on behalf of the Delaware Public Service Commission. Evaluated the capacity of the sources of supply available to the Company with respect to projected demands and the requirements of the Delaware Water Supply Self-Sufficiency Act of 2003. Assessed the effectiveness of water conservation activities and developed recommendations to improve the efficiency and effectiveness of Company conservation programs.
- Provided expert testimony on behalf of the Delaware Public Advocate in the matter of Inland Bays Preservation Company’s request for an increase in wastewater rates before the Delaware Public Service Commission (PSC Docket No. 09-327-WW). Evaluated plant facilities, proposed projects and the allocation of developer contributions in aid of construction to determine rate base. Assessed the level of operating expenses claimed in the filing and recommended adjustments to substantially lower the requested rate increase.
- Provided expert testimony on behalf of the Delaware Public Advocate in the matter of Tidewater Environmental Services, Inc.’s request for a base rate adjustment for seven of its regulated wastewater utility systems (PSC Docket No. 11-329WW). Established independent revenue requirements for each system to assure that costs and rates were properly matched for each independent group of customers served by the Company. Recommended an overall rate adjustment that was equivalent to 60% of the initial rate request and was within 12% of the final Ordered rates in this matter.
- Provided expert testimony on behalf of the Delaware Public Advocate in the matter of Tidewater Utilities, Inc.’s request for a base rate adjustment for its regulated water systems throughout Delaware (PSC Docket 13-466). Provided testimony on engineering and accounting issues related to the determination of the Company’s revenue requirement that resulted in a rate settlement equivalent to twenty percent of the Company’s filed rate request.
- Prepared a tariff design evaluation for the Pequannock River Basin Regional Sewer

ACCOMPLISHMENTS (CONTINUED)

Authority to assess alternative rate structures for service to regional participating municipalities. Evaluated current budgeting and billing systems and alternatives to equitably allocate regional system costs to the participating municipalities.

- Provided expert testimony on behalf of the Village of Ridgewood Water Utility in a dispute regarding the regional allocation of costs to retail customers serviced beyond the corporate boundaries of the Village. Reviewed historical budgets and actual financial results, developed revised and updated cost allocations for shared services and provided recommendations on retail rates charged within and outside of the Village.
- Provided expert advice to the Borough of Ridgefield regarding the failure of a 36-inch diameter PCCP water main owned by an investor-owned utility. Assisted the Borough in negotiating a suitable restoration and replacement plan and in negotiations for the recovery of damages resulting from the break.
- Provided expert testimony on behalf of the Township of Newtown before the Pennsylvania Public Utility Commission (PUC Dkt. No. P-2012-2327738) in regard to a dispute between the Township and Newtown Artesian Water Company regarding the siting of a proposed new well. Evaluated current and future water supply needs, water quality and treatment needs and the revenue requirement of the proposed project relative to other alternatives.
- Managed 175 municipal and commercial water and wastewater contracts located in seven states for American Water Services/AmericanAnglian Environmental Technologies. Through these contracts, cost effective water and wastewater service was provided to over one million people. Contracts included the 160 MGD City of Buffalo, NY water system and the 30 MGD Scranton Sewer Authority wastewater operations. Directed an operations staff of 700 employees. Eliminated financial losses while improving safety and quality.
- Directed a marketing and business development staff for AmericanAnglian Environmental Technologies that secured the largest operations and maintenance contract awarded in the US in 1999 and the second best overall performance in the US market. Increased revenues by 28%. Evaluated potential contract operations and design/build projects to identify operating and capital savings on hundreds of potential contracts throughout the United States. Evaluations included Atlanta, Georgia, Scranton, Pennsylvania and Springfield, Massachusetts.
- Managed the operations of 16 water systems for New Jersey-American Water Company, a regulated investor-owned utility serving one million people throughout NJ. Coordinated the activities of a decentralized operations staff of 440 to provide reliable water service, ensure environmental compliance, control costs, manage and maintain system assets, reduce liability, provide site security and maintain a safe work place, and meet financial objectives. Responsible for the maintenance and operation of all source of supply, treatment, filtration and storage facilities, producing and distributing between 100 MGD and 220 MGD, as well as over 4,000 miles of water transmission and distribution facilities.
- Directed a team of engineering, legal, public relations and financial professionals that planned, designed, permitted and constructed a \$192,000,000 water treatment plant and pipeline system for New Jersey-American Water Company. The intake, constructed in environmentally sensitive areas and the state of the art water filtration

ACCOMPLISHMENTS (CONTINUED)

plant can be expanded to produce 100 MGD. The project is the principal source of surface water for nearly one million people in southern New Jersey and it was built to allow new regulatory controls on ground water use to go into effect. The project was completed within budget and on schedule.

- Developed the financial model and contract language that allowed water lines to be extended to over 3,000 homes with contaminated private wells in Atlantic County, New Jersey. This program provided the financial assurances needed to construct several miles of water mains, eliminate federal tax liability and reduce costs by 34%.
- Initiated and directed the first study of desalination for public water supply purposes in NJ for the City of Cape May. This project evaluated two desalination technologies and demonstrated that reverse osmosis could be used effectively to treat brackish water at a competitive cost. A full-scale plant has since been placed in service.
- Developed long-range regional water supply plan for Monmouth County, New Jersey, a county that was adding as many as 1,000 water utility customers per year and seriously stressing the water supply. The plan evaluated alternative sources of water, conservation and regional reservoir development. The recommendations avoided \$30,000,000 in capital construction while ensuring a safe supply of water for a 15-year planning period. Negotiated supply sharing operating agreements with the New Jersey Water Supply Authority to implement the plan.
- Directed a staff of engineers and consultants in preparing comprehensive plans for 60 water systems located throughout the United States. Communities served by these systems include: Pittsburgh, Pennsylvania and its surrounding suburbs; Charleston, West Virginia; Richmond, Indiana; E. Saint Louis, Illinois and Monterey, California. Evaluated alternatives and identified the least costly means of providing safe water service for each system. Assessed operations strategies to identify external threats to the reliability and efficiency of these systems. Identified specific capital facility needs and operations strategies for five, ten and fifteen year planning horizons, defined the long term role of each system in prompting regional water supply development, and assessed the impact of future State and Federal water quality regulations on system operations and needs.
- Developed a formula for allocating ground water to 30 water suppliers in southern New Jersey for the New Jersey Department of Environmental Protection and negotiated an implementation agreement with effected suppliers. The New Jersey Legislature adopted the formula in the Water Supply Management Act Amendments of 1992. The allocation formula protects a regional aquifer from over-pumping.
- Developed a plan to convey storm water through a sixty-foot high railroad embankment in Prince Georges County, Maryland. Evaluated alternative methods and selected one that allowed an existing culvert to be modified to carry higher flow rates. Saved over \$500,000 in construction costs. The Washington Suburban Sanitary Commission and Prince Georges County adopted the design as a standard in their storm water design manual.
- Negotiated Lakewood, New Jersey's first three-year water and wastewater labor agreement in the face of an impending strike, departing from prior history of year-to-year contract agreements.
- Provided expert testimony in judicial proceedings involving utility rate adjustments

ACCOMPLISHMENTS (CONTINUED)

before the New Jersey Board of Public Utilities, the Connecticut Department of Public Utility Control and the New York Public Service Commission. Testified on environmental and operations topics including: rate setting strategies, source of supply improvements, water resources management, treatment to mitigate contamination, staffing levels and operating practices. Testified as to the least costly means of operating and maintaining water and wastewater facilities.

- Served as a gubernatorial appointee to the New Jersey Water Supply Advisory Council under Governors Florio and Whitman. Advised the NJ Department of Environmental Protection on a variety of water resources management issues.
- Coordinated the response to an outbreak of giardiasis for the US Environmental Protection Agency. The outbreak affected 20% of the people served by a municipal water system in north-central Pennsylvania. Specified immediate control measures, short-term treatment techniques and long-term treatment improvements to resolve the immediate problem and prevent a recurrence.

AWARDS

John J. Gallen Memorial Award presented by the Villanova University College of Engineering (1988) in recognition of many significant achievements in the field of water supply and distribution, effective leadership in developing regional water supply systems and contributions in the development of comprehensive plans for water supply systems.

George Warren Fuller Award presented by the American Water Works Association (2013) for distinguished service to the water supply field in commemoration of the sound engineering skill, brilliant diplomatic talent and constructive leadership which characterized the life of George Warren Fuller.

REPRESENTATIVE CLIENTS

- A.C. Schultes, Inc.
- Aquarion Water Company of Connecticut
- Aquarion Water Company of Massachusetts
- Atlantic City Municipal Utilities Authority
- Bethlehem Water Authority
- BOC Gases
- Bucks County Water & Sewer Authority
- Camco Management
- Cedar Grove Township
- Consumers New Jersey Water Company
- Delaware Public Advocate
- Delaware Public Service Commission
- D. R. Horton – New Jersey
- Elmira Water Board
- Erie City Water Authority
- Greater Ouachita Water Company
- Harris Defense Group
- Jersey City Municipal Utilities Authority
- Lower Makefield Township
- New Jersey-American Water Company
- New Jersey Division of Rate Counsel
- New Jersey Water Supply Authority
- New York City Department of Environmental Protection
- North Penn Water Authority
- North Wales Water Authority
- Passaic Valley Water Commission
- Pequannock River Basin Regional Sewerage Authority
- Perkasio Borough
- Perkasio Borough Authority
- Pricewaterhouse Coopers, LLP
- Southeast Morris County Municipal Utilities Authority
- Sussex Shores Water Company
- Township of Sparta (NJ)
- U.S. Water, LLC
- Upper Dublin Township
- Village of Ridgewood (NJ)
- Williams Alaska Resource

PROFESSIONAL QUALIFICATIONS

Registered Professional Engineer in Delaware (2004), Maryland (1982), New Jersey (1984), New Mexico (1987), New York (1984) and Pennsylvania (1983).

Licensed to complete RAM-W vulnerability assessments (2002).

PROFESSIONAL ASSOCIATIONS

American Society of Civil Engineers, American Water Works Association (Trustee of New Jersey Section), American Water Resource Management Association, International Water Association, National Ground Water Association, National Fire Protection Association, Water Environment Federation, Tau Beta Pi.

PROFESSIONAL HISTORY

HOWARD J. WOODS, JR. & ASSOCIATES, LLC	2000 - Present
General Manager	
AMERICAN WATER WORKS COMPANY	1983 - 2000
American Water Services, Inc.	
Senior Vice President - Operations	1999 - 2000
American Anglian Environmental Tech., L.P.	
Senior Vice President - Business Development	1998 - 1999
American Water Works Service Co.	
Vice President - Special Projects	1997 - 1998
New Jersey-American Water Co., Inc.	
Vice President - Operations	1989 - 1997
American Water Works Service Co.	
Engineering Manager	1988 - 1989
System Director of Planning	1986 - 1988
Division Manager of Operations	1984 - 1986
Division Director of Engineering	1983 - 1984
JOHNSON, MIRMIRAN & THOMPSON	1981 - 1983
Project Engineer	
U.S. ENVIRONMENTAL PROTECTION AGENCY	1977 - 1981
Environmental Engineer	

CONTACT INFORMATION

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 Howard J. Woods, Jr. & Associates, L.L.C.
 49 Overhill Road, East Brunswick, NJ 08816-4211
 Phone: 267-254-5667
 E-mail: howard@howardwoods.com

EXHIBIT B

**BEFORE THE
STATE OF NEW JERSEY
BOARD OF PUBLIC UTILITIES
OFFICE OF ADMINISTRATIVE LAW**

In the Matter of:

**THE PETITION OF NEW JERSEY
AMERICAN WATER COMPANY FOR A
DETERMINATION CONCERNING THE
FENWICK WATER TANK PURSUANT TO
N.J.S.A. 40:55D-19**

**BPU Docket No.
WO22010004**

**OAL Docket No.
PUC-00319-2022 S**

REBUTTAL TESTIMONY AND EXHIBITS OF

HOWARD J. WOODS, JR., P.E.

**ON BEHALF OF THE
NEW JERSEY
DIVISION OF RATE COUNSEL**

**BRIAN O. LIPMAN, ESQ.
DIRECTOR, DIVISION OF RATE COUNSEL**

Division of Rate Counsel
140 East Front Street, 4th Floor
P.O. Box 3
Trenton, New Jersey 08625-0003

Filed: November 21, 2022

**New Jersey American Water Company,
BPU Docket No. WO22010004
Rebuttal Testimony of Howard J. Woods, Jr., P.E.**

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1. IDENTIFICATION OF TESTIMONY	1
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1 **1. IDENTIFICATION OF TESTIMONY**

2

3 **Q. PLEASE STATE YOUR NAME AND ADDRESS.**

4 A. My name is Howard J. Woods, Jr. and my address is 49 Overhill Road, East Brunswick, New
5 Jersey 08816-4211.

6

7 **Q. ARE YOU THE SAME HOWARD J. WOODS, JR. WHO FILED DIRECT TESTIMONY**
8 **IN THIS MATTER ON OCTOBER 18, 2022, IN THIS PROCEEDING?**

9 A. Yes.

10

11 **Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?**

12 A. This rebuttal testimony is in response to the Direct Testimony of Ms. Giselle Diaz filed on October
13 21, 2022.

14

15 **2. SOURCE OF SUPPLY**

16

17 **Q. MS. DIAZ ASSERTS THAT NEW JERSEY AMERICAN WATER COMPANY (“NJAW”)**
18 **HAS ADEQUATE SOURCES OF SUPPLY TO REPLACE THE WATER PURCHASED**
19 **FROM MORRIS COUNTY MUNICIPAL UTILITIES AUTHORITY (“MCMUA”) (DIAZ**
20 **DIRECT, PAGE 7, LINE 111 THROUGH PAGE 8, LINE 130). DO YOU AGREE?**

21 A. Yes.

22

23 **Q. MS. DIAZ ASSERTS THAT NJAW COULD HAVE REPLACED THE WATER**
24 **PURCHASED FROM MCMUA BY PURCHASING THE SAME WATER FROM THE**
25 **SOUTHEAST MORRIS COUNTY MUNICIPAL UTILITIES AUTHORITY (“SMCMUA”)**

1 **(DIAZ DIRECT, PAGE 8, LINES 134 – 135). DO YOU AGREE THAT THIS IS A**
2 **FEASIBLE ALTERNATIVE?**

3 A. No, it is not a feasible alternative.

4
5 **Q. PLEASE EXPLAIN.**

6 A. First, MCMUA exercised its right to terminate the agreement to sell water to NJAW and issued a
7 timely notice of termination under the contract. The water supplied by MCMUA to NJAW
8 included water MCMUA purchased from SMCMUA plus additional water from MCMUA ground
9 water sources. It is my understanding that the water originating from SMCMUA sources made up
10 only 60% of the water supplied by MCMUA to NJAW. Direct purchases from SMCMUA would
11 have had to be supplemented with water from other SMCMUA sources to provide an equivalent
12 amount of supply. Without the transfer of additional water from SMCMUA to NJAW, NJAW
13 simply could not purchase water from SMCMUA on an equivalent volume basis.

14
15 **Q. DID SMCMUA CONSIDER SELLING ADDITIONAL VOLUMES OF WATER TO**
16 **NJAW?**

17 A. Yes, it did. SMCMUA undertook an investigation of the modifications that would be required to
18 its system to continue to make available water from the Clyde Potts Reservoir and to supplement
19 this supply with water from other SMCMUA sources. To accomplish this, the existing pump
20 station located adjacent to the Clyde Potts Reservoir and Treatment Plant would need to be moved
21 to a different location to allow access to water from other sources and to address compliance with
22 the Surface Water Treatment Rules.

23
24 **Q. WHAT CONCLUSION DID SMCMUA REACH WITH REGARD TO THIS**
25 **INVESTIGATION?**

1 A. Compliance with the Surface Water Treatment Rules would have required either a relocation of the
2 pump station or extensive modifications to the clear water storage basin at the Clyde Potts Water
3 Treatment Plant. In addition, during the course of its evaluation, SMCMUA became aware of new
4 New Jersey Department of Environmental Protection (“NJDEP”) rules regarding polyfluorinated
5 compounds (“PFC”) in drinking water. Because some SMCMUA wells had low levels of these
6 compounds present in the water, SMCMUA made a decision to retain the water available in the
7 Clyde Potts Reservoir for use by its own customers within the SMCMUA District. SMCMUA
8 currently has two wells off-line because of the presence of PFC’s and they have joined in litigation
9 against the manufacturers and suppliers of these compounds. In short, there is no surplus water
10 available in the SMCMUA system to export to NJAW.

11

12 **Q. HOW IS IT THAT YOU ARE AWARE OF THIS CONCLUSION?**

13 A. Since 2014, I have been engaged by SMCMUA to provide source of supply and business planning
14 consulting services. I personally participated in the investigation and in particular, the impact of
15 the PFC issue and related litigation.

16

17 **Q. WITH REGARD TO THE SUPPLY FROM MCMUA, IS IT YOUR UNDERSTANDING**
18 **THAT NJDEP SUPPORTED MCMUA’S DECISION TO REDUCE THE AMOUNT OF**
19 **WATER AVAILABLE FROM MCMUA TO NJAW TO AN AMOUNT NOT TO EXCEED**
20 **0.1 MILLION GALLONS PER DAY?**

21 A. Yes. This is clear in the letter from NJDEP dated October 22, 2020, provided as Ms. Diaz’s Exhibit
22 M.

23

24

1 **3. AVAILABLE STORAGE**

2

3 **Q. DOES NJAW HAVE ADEQUATE STORAGE IN ITS PASSAIC BASIN SYSTEM?**

4 A. Yes. This is evident from the analysis done by NJDEP when it issued the permit to NJAW to
5 construct the proposed replacement tank. A copy of this permit was provided in response to RCR-
6 E-27 and this conclusion is reached on page 10 of 12 of the attachment. Ms. Diaz also reproduced
7 the attachment as her Exhibit L.

8

9 **Q. WHAT DOES THE PERMIT ISSUED BY NJDEP, AND INCLUDED AS MS. DIAZ’S**
10 **EXHIBIT L, AUTHORIZE?**

11 A. The cover letter (Page 1 of 12 of Diaz Exhibit L) and the permit sheet (Page 2 of 12 of Diaz Exhibit
12 L) grants NJAW permission to “Replace the existing 250,000 gallon ground storage tank with a
13 new 750,000 gallon elevated steel water storage tank **to provide additional potable water storage**
14 **and fire storage for the Mendham Low Gradient.**” (Emphasis added.)

15

16 **Q. WHAT IS THE SIGNIFICANCE OF THE QUALIFICATION IN THE PERMIT THAT**
17 **THE STORAGE IS FOR THE MENDHAM GRADIENT?**

18 A. While NJDEP is concerned that the NJAW Passaic Basin system has adequate storage overall, they
19 are also concerned that customers isolated within individual pressure zones have adequate storage
20 for peak hour equalization, fire protection and during emergencies. While the NJAW Passaic Basin
21 system clearly has more storage than the minimum required by NJDEP, it is also evident that the
22 existing storage in the Mendham Low Gradient is not adequate. This inadequacy is exacerbated
23 by the loss of supply on the northern side of the Mendham Low Gradient distribution network.

24

25 **Q. WHAT IS THE MENDHAM LOW GRADIENT?**

1 A. This is the geographic portion of the NJAW distribution network shown in the responses to RCR-
2 E-1 and RCR-E-2. The Mendham Low Gradient is a hydraulically isolated portion of the NJAW
3 water distribution network. Pressure within this geographic area is determined by the water surface
4 elevation in the Fenwick Tank and the operation of the pump stations and supply sources providing
5 water to those mains. The water mains within this area are physically isolated from other nearby
6 NJAW water mains by closed valves or physical gaps in the mains. The maximum water surface
7 elevation within the Fenwick Tank when it is full is 772 feet above mean sea level (RCR-E-15).
8 The proposed tank will increase this elevation to 818 feet (RCR-E-15). These elevations
9 determine the maximum pressure that any customer would enjoy under static conditions.
10 For example, a customer at a ground elevation of 600 feet would see a pressure of about
11 74 pounds per square inch (“psi”) and this will increase to about 94 psi with the replacement
12 tank in service.

13
14 **Q. CAN STORAGE IN ADJACENT PRESSURE GRADIENTS BE RELIED ON ACROSS**
15 **PRESSURE BOUNDARIES?**

16 A. Generally not. In cases where an adjacent pressure gradient is lower, connecting the systems would
17 cause water to flow from the higher pressure zone to the lower pressure zone. Water stored in the
18 lower pressure zone would not be able to flow to the higher pressure zone if it were needed. In
19 cases where the adjacent pressure zone operates at a higher pressure, proper pressure control
20 devices can be installed to allow water to be transmitted to the lower pressure gradient under
21 defined conditions. This is the case with the adjacent Mendham High Gradient where a pressure
22 regulating valve exists (Diaz Exhibit N, Response to Question 29). The Mendham High Gradient
23 is at elevation 1,045 feet above mean sea level or about 273 feet higher than the existing Fenwick
24 Tank. Nevertheless, each pressure gradient should be provided with adequate storage to equalize
25 pumping into the gradient and provide an adequate reserve volume for fire protection during

1 equipment maintenance events or power outages. In larger gradients where fire protection is
2 provided, like the Mendham Low Gradient, which supplies water to approximately 3,000 customers
3 in Mendham Township, Mendham Borough and in the Borough of Bernardsville (Direct Testimony
4 of Donald C. Shields, Exhibit PT-1; September 20, 2022; Page 9; Lines 12-13), NJDEP rules
5 require the storage to be available by gravity flow (N.J.A.C. 7:10-11.11(a)(2)). Gravity flow means
6 that the volume will be available for use without the aid of further pumping.

7
8 **Q. WHAT STORAGE EXISTS IN THE MENDHAM HIGH GRADIENT?**

9 A. NJAW has an existing 1.0 million gallon tank known as the Horizon Drive Tank.

10
11 **Q. IS THE FULL VOLUME OF THIS TANK AVAILABLE FOR USE?**

12 A. No. While the total storage is 1.0 million gallons, only 136,000 gallons can be used while
13 maintaining adequate pressure within the Mendham High Gradient (Diaz Exhibit P, Response to
14 Question 18).

15
16 **Q. IF YOU DISREGARD THE STORAGE REQUIREMENTS IN THE MENDHAM HIGH
17 GRADIENT, IS THIS VOLUME OF AVAILABLE STORAGE IN THE HORIZON DRIVE
18 TANK ADEQUATE FOR FIRE PROTECTION AND EQUALIZATION STORAGE IN
19 THE MENDHAM LOW GRADIENT?**

20 A. No, it is not.

21
22 **Q. IF THE EXISTING FENWICK TANK WERE TO BE RETAINED, HOW MUCH
23 AVAILABLE STORAGE IS THERE FOR USE IN THE MENDHAM LOW GRADIENT?**

24 A. I believe the maximum volume available for equalization and fire protection in the existing tank is
25 43,000 gallons.

26

1 **Q. IF THE AVAILABLE STORAGE IN THE HORIZON DRIVE TANK COULD BE USED**
2 **IN THE MENDHAM LOW GRADIENT, WOULD THIS ADDITIONAL VOLUME**
3 **ACTING WITH THE AVAILABLE STORAGE IN THE EXISTING FENWICK TANK BE**
4 **ADEQUATE?**

5 A. No, it would not be adequate.
6

7 **Q. WHAT IS THE AREA ALONG HORIZON DRIVE DOWN COLD HILL ROAD PAST**
8 **CLYDE POTTS AND UP TO COE FARM ROAD, WHICH MS. DIAZ REFERS TO ON**
9 **PAGE 14 OF HER DIRECT TESTIMONY?**

10 A. This is a small area served by NJAW from mains that were extended from an existing water main
11 owned by MCMUA. These customers are located upstream of the MCMUA interconnection with
12 NJAW and are supplied pressure by MCMUA mains that is comparable to the pressure in the
13 Mendham High Gradient. The use in this area is less than 100,000 gallons per day (Diaz, Exhibit
14 M). A complete termination of all service by MCMUA would leave these customers without water
15 unless NJAW were to acquire the existing MCMUA main and connect that main to the Mendham
16 High Gradient. Connecting these customers, who are already outside of the Mendham Low
17 Gradient would have no impact on the storage requirements in the Mendham Low Gradient.
18

19 **Q. MS. DIAZ CLAIMS THAT THERE IS NO EVIDENCE IN THE RECORD**
20 **DEMONSTRATING THAT SERVICE WOULD BE INADEQUATE AFTER THE LOSS**
21 **OF THE MCMUA SUPPLY (DIAZ DIRECT, PAGE 15, LINES 287 TO 295). DO YOU**
22 **AGREE?**

23 A. No. This is demonstrated in Mr. Shields Direct Testimony in Exhibit A and Exhibit B. Exhibit A
24 shows that fire protection in Bernardsville would be degraded and would become inadequate and
25 that pressures during summer demands would not satisfy minimum NJDEP requirements in the

1 vicinity of the existing tank. Exhibit B shows that there would be inadequate fire protection and
2 low pressures in areas of Mendham Borough and Mendham Township.

3
4 **Q. IS IT POSSIBLE TO RELY ON THE HORIZON DRIVE TANK TO SATISFY FIRE**
5 **PROTECTION NEEDS IN THE MENDHAM LOW GRADIENT?**

6 A. The Horizon Drive Tank has a useful storage volume of only 136,000 gallons. Thus the 864,000
7 gallons of water in the bottom of the tank cannot be used without causing service deficiencies in
8 the Mendham High Gradient. While the 864,000 gallons of unusable storage is certainly at a high
9 enough elevation to provide water in the Mendham Low Gradient, it is simply not available for
10 such use without adversely impacting service to customers in the Mendham High Gradient.

11
12 **Q. IN YOUR OPINION IS IT POSSIBLE TO REPLACE THE HORIZON DRIVE TANK,**
13 **RATHER THAN THE FENWICK TANK, IN A WAY THAT WOULD PROVIDE**
14 **ADEQUATE STORAGE FOR BOTH THE MENDHAM HIGH AND MENDHAM LOW**
15 **GRADIENTS?**

16 A. No. This would be inherently inefficient. With the proposed Fenwick Tank in operation, water
17 supplied to the Mendham Low Gradient would have to be pumped only to the overflow elevation
18 of the proposed tank (881 feet). By locating the storage in the Mendham High Gradient, any excess
19 supply for peak hour equalization would need to be pumped an additional 164 feet in elevation.
20 The energy required to do this would be wasted through a pressure regulating valve to return the
21 water to the lower Mendham Low Pressure Gradient during peak use periods. This would represent
22 an ongoing and daily expense for wasted power that cannot be justified. In addition, the current
23 pumping system used to transfer water to the Horizon Drive Tank (or its replacement) would need
24 to be modified to accommodate the additional transfer volumes. This would represent yet another
25 capital expense that is unnecessary.

26

1 **4. CONCLUSION**

2

3 **Q. HAS YOUR RECOMMENDATION IN THIS MATTER CHANGED IN ANY WAY?**

4 A. No. In the interest of the Company's ratepayers, it is my opinion that the relief requested
5 by the Company should be granted.

6

7 **Q. DOES THIS COMPLETE YOUR TESTIMONY AT THIS TIME?**

8 A. Yes, it does, though I reserve the right to update my testimony if needed.

9

EXHIBIT C

**STATE OF NEW JERSEY
OFFICE OF ADMINISTRATIVE LAW**

:
In the Matter of the Petition of New Jersey : OAL Docket. No.: PUC 00319-2022S
American Water Company for a Determination
Concerning the Fenwick Water Tank Pursuant : BPU Ref. No.: WO22010004
To N.J.S.A. 40:55D-19 :
:

**INTERVENOR PAUL SAVAS' INTERROGATORIES AND DOCUMENT REQUESTS
DIRECTED TO RATE COUNSEL WITNESS HOWARD WOODS BASED ON HIS REBUTTAL
TESTIMONY FILED NOVEMBER 21, 2022**

1. Have you ever been employed by the Southeast Morris County Municipal Utilities Authority ("SMCMUA") or received compensation from the SMCMUA as a consultant? If the answer is 'yes', please describe the dates of such employment or consulting agreement and the nature of your work/assignments.
2. Did you perform any studies or modeling to prepare your Rebuttal Testimony?
3. If the answer to the above question is "yes," please provide the study or specify the model that you used and whether the model was provided to you by NJAW. Please also provide a copy of the results of any such study or modeling.
4. In your Answer at page 2, lines 9-10, what is the basis of your statement that "It is my understanding that the water originating from SMCMUA sources made up only 60% of the water supplied by MCMUA to NJAW"? Provide all documents you have relied upon to make this assertion.
5. Do you intend to testify at the trial in this matter as a fact witness, based on your personal knowledge of the facts at issue in this case? If the answer is 'yes,' please provide a summary of your knowledge of the facts of this case.
6. In your Answer at page 2, lines 10-12, what is the factual basis for your statement that "Direct purchases from SMCMUA would have had to be supplemented with water from other SMCMUA sources to provide an equivalent amount of supply"? Provide all documents you have relied upon to make this assertion.
7. In your Question and Answer starting on page 2, line 18, you state that SMCMUA was considering selling "additional volumes of water" to NJAW. Do you mean in addition to the 60% that you reference in the answer to the previous question?
8. In your Answer at page 2, starting at line 18, you refer to an "investigation of the modifications that would be required to SMCMUA's system to continue to make available water from the Clyde Potts Reservoir and to supplement this supply with water from other SMCMUA sources" (hereinafter the "Investigation").

Please: a) provide all documents (including but not limited to emails) related to the Investigation.

b) explain your role in this Investigation.

c) provide copies of all of your billing/invoicing records, if any, relating to this Investigation.

d) set forth the names of all individuals (with employer) involved in this investigation and the dates when the Investigation took place;

- e) provide copies of any document, email or report concerning this Investigation; and
 - f) provide the date(s) of the Investigation.
9. In your Question and Answer starting on page 2, line 25 and continuing onto page 3, you write that “SMCMUA became aware of new New Jersey Department of Environmental Protection (“NJDEP”) rules regarding polyfluorinated compounds (“PFC”) in drinking water.” Provide all documents or references to regulations that support the assertion that “SMCMUA became aware” of these new rules. Did SMCMUA authorize you to speak on its behalf regarding this subject in this proceeding?
 10. In your Answer at page 3, line 9, you state “In short, there is no surplus water available in the SMCMUA system to export to NJAW.”
 - Please: a) state any job or position you held with SMCMUA in the last ten (10) years, including as a consultant.
 - b) identify any authority given to you by the SMCMUA to make the assertion in this Question 9 on its behalf.
 - c) state whether SMCMUA has given you authority to make this assertion on its behalf, and (if so) identify the date you were so authorized and who at the SMCMUA authorized you to make this assertion.
 - d) identify all individuals you spoke to at SMCMUA who have knowledge that you made this assertion in your Rebuttal Testimony.
 - e) provide all documents (including but not limited to emails) that support this assertion.
 - f) identify all persons at SMCMUA that you discussed this assertion with, either by phone, letter or email, when preparing your Rebuttal Testimony.
 - g) provide any document, email or report that support this assertion.
 11. As of the date of your response to these data requests, does SMCMUA continue to provide water from the Clyde Potts Reservoir to the Morris County Municipal Utilities Authority (“MCMUA”)?
 12. In your Question and Answer at page 3, line 14, you stated that you “personally participated in the investigation and in particular, the impact of the PFC issue and related litigation.” Please provide all communications, including emails, between you and the SMCMUA concerning or related to this investigation and the related litigation that you have referenced.
 13. In your Answer at page 4, line 16, you state that NJDEP is “also concerned that customers isolated within individual pressure zones have adequate storage for peak hour equalization, fire protection and during emergencies.” Provide the citation to any NJDEP rule, regulation or written document that supports the assertion that NJDEP is “concerned with individual pressure zones.”
 14. In your Question and Answer starting on page 4, line 16, you stated that “it is also evident that the existing storage in the Mendham Low Gradient is not adequate.” Have you personally performed any modeling, studies or analysis that that supports this assertion? If the answer is ‘yes,’ please provide copies of such modeling, studies or analysis.
 15. In your Answer starting at page 6, line 13, you assert that only 136,000 gallons (from the Horizon Drive Tank) can be used while maintaining adequate pressure within the Mendham High Gradient.” Have you personally conducted any modeling, studies or analysis on the impact on pressure within the Mendham High Gradient if volumes in excess of 136,000 gallons are used for firefighting? If the answer is ‘yes,’ please provide copies any such modeling, study or analysis.

16. Are you aware of any fire event or incident in the last 25 years where the existing Fenwick Tank was not adequate for fire protection services? If the answer is 'yes, please identify the date of that event and provide a description of why the existing Fenwick Tank was not adequate.
17. In your Question and Answer starting on page 6, line 23, you assert that the "maximum volume available for equalization and fire protection in the existing tank is 43,000 gallons." What is your basis for this statement? Please provide copies of any document that supports this assertion. Have you conducted any modeling, study or analysis that supports his assertion? If so, please provide copies of any such modeling, study or analysis.
18. In your Question and Answer starting on page 7, line 2, you assert in substance that that available storage in the Horizon Tank, when used with the existing Fenwick Tank, would "not be adequate." Please explain what the stored water would not be 'adequate' for. Have you conducted any analysis, study or modeling to support this assertion? If the answer is 'yes,' please provide such copies of any such analysis, study or modeling.
19. Regarding your Question and Answer starting on page 7, line 20, do you have any personal knowledge of your Answer or do you rely solely on the testimony of Mr. Shields that you cite? If you have personal knowledge of your answer to this question, please provide copies of all documents, analysis or studies that support your answer.
20. In your Question and Answer starting on page 8, line 4, you state that the "864,000 gallons at the bottom of [the Horizon] tank cannot be used without causing service deficiencies in the Mendham High Gradient."

Please explain the "service deficiencies" that you cite in your Answer.

Did you perform any analysis, modeling or studies that in any way quantifies the "services deficiencies" that you have asserted? If the answer is 'yes,' please provide copies of any such analysis, modeling or studies.

21. In your Question and Answer starting on page 8, line 4, you state that the 864,00 gallons at the bottom of Horizon tank is "simply not available for such [fire protection] use without adversely impacting service to customers in the Mendham High Gradient." Did you perform any analysis, modeling or studies that in any way quantifies the "adverse impacts" that you have asserted? If the answer is 'yes,' please provide copies of any such analysis, modeling or studies.

EXHIBIT D

Phyllis J. Kessler, Esq.
David B. Amerikaner, Esq.
Duane Morris, LLP
1540 Broadway, Suite 1400
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pjkessler@duanemorris.com
dbamerikaner@duanemorris.com
Attorneys for Paul Savas

**STATE OF NEW JERSEY
OFFICE OF ADMINISTRATIVE LAW**

In the Matter of the Petition of New Jersey	:	OAL Docket. No.: PUC 00319-2022S
American Water Company for a Determination	:	
Concerning the Fenwick Water Tank Pursuant	:	BPU Ref. No.: WO22010004
To N.J.S.A. 40:55D-19	:	

**SUBPOENA FOR PRODUCTION OF DOCUMENTARY EVIDENCE AND
ELECTRONICALLY STORED INFORMATION**

TO: Southeast Morris County Municipal Utilities Authority
c/o Laura Cummings, PE, Executive Director
19 Saddle Road
Cedar Knolls, New Jersey 07927

As provided by N.J.S.A. 52:14F-1 *et seq.* and N.J.A.C. 1:1-10.1 *et seq.*, and New Jersey Rule of Court 1:9-2, you are hereby commanded to produce electronically to pjkessler@duanemorris.com or by mail to David B. Amerikaner, Duane Morris LLP, 30 South 17th Street, Philadelphia, PA 19103, by 5:00 p.m. on Friday, October 7, 2022, the following:

All email communications dated from 2017 to the present between Laura Cummings and Howard Woods concerning the sale or potential sale of water at the Clyde Potts Reservoir to New Jersey American Water, including but not limited to communications concerning a pump station located adjacent to the Clyde Potts Reservoir and/or the pricing of such water.

PLEASE TAKE NOTICE that, provided you are notified that a motion to quash the subpoena has been filed, the subpoenaed evidence shall not be produced or released until ordered to do so by the court or the release is consented to by all parties to the action.

Date: Sept. 16, 2022

By: 
David B. Amerikaner, Esq.

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Attorneys for Karen Martin

**STATE OF NEW JERSEY
OFFICE OF ADMINISTRATIVE LAW**

In the Matter of the Petition of New Jersey	:	
American Water Company for a Determination	:	OAL Docket. No.: PUC 00319-2022S
Concerning the Fenwick Water Tank Pursuant	:	
To N.J.S.A. 40:55D-19	:	BPU Ref. No.: WO22010004
	:	
	:	

**SUBPOENA FOR PRODUCTION OF DOCUMENTARY EVIDENCE AND
ELECTRONICALLY STORED INFORMATION**

TO: Morris County Municipal Utilities Authority
c/o Larry Gindoff, Executive Director
214A Center Grove Road
Randolph, New Jersey 07869

As provided by N.J.S.A. 52:14F-1 *et seq.* and N.J.A.C. 1:1-10.1 *et seq.*, and New Jersey Rule of Court 1:9-2, you are hereby commanded to produce electronically to pjkessler@duanemorris.com or by mail to Phyllis J. Kessler, Duane Morris LLP, 1540

Broadway, Suite 1400, New York, NY 10022 by 5:00 p.m. on Friday, June 24, 2022, the following:

All correspondence and communications, including letters, emails, and other electronically stored information dated May 1, 2017 or later, between or among the Morris County Municipal Utilities Authority (“MCMUA”) or any representative of MCMUA, the Southeast Morris County Municipal Utilities Authority (“SMCMUA”) or any representative of SMCMUA, and/or New Jersey American Water Company (“NJAWC”) or any representative of NJAWC, concerning or pertaining in any way to either (i) the January 6, 2012 Water Supply Agreement between NJAWC and MCMUA, or (ii) the September 10, 2002 Water Supply Agreement (amended June 1, 2012) between MCMUA and SMCMUA, including but not limited to any correspondence and communications relating to negotiations concerning renewal of either agreement.

PLEASE TAKE NOTICE that, provided you are notified that a motion to quash the subpoena has been filed, the subpoenaed evidence shall not be produced or released until ordered to do so by the court or the release is consented to by all parties to the action.

PLEASE TAKE FURTHER NOTICE that failure to comply with the commands of this Subpoena will subject you to the penalties provided by law.

Date: May 20, 2022

By: */s/ Phyllis Kessler, Esq.*
Phyllis Kessler, Esq.

Phyllis J. Kessler, Esq.
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Attorneys for Karen Martin

**STATE OF NEW JERSEY
OFFICE OF ADMINISTRATIVE LAW**

In the Matter of the Petition of New Jersey	:
American Water Company for a Determination	: OAL Docket. No.: PUC 00319-2022S
Concerning the Fenwick Water Tank Pursuant	:
To N.J.S.A. 40:55D-19	: BPU Ref. No.: WO22010004
	:
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ELECTRONICALLY STORED INFORMATION**

TO: Southeast Morris County Municipal Utilities Authority
c/o Laura Cummings, PE, Executive Director
19 Saddle Road
Cedar Knolls, New Jersey 07927

As provided by N.J.S.A. 52:14F-1 *et seq.* and N.J.A.C. 1:1-10.1 *et seq.*, and New Jersey Rule of Court 1:9-2, you are hereby commanded to produce electronically to pjkessler@duanemorris.com or by mail to Phyllis J. Kessler, Duane Morris LLP, 1540

Broadway, Suite 1400, New York, NY 10022 by 5:00 p.m. on Friday, June 24, 2022, the following:

All correspondence and communications, including letters, emails, and other electronically stored information dated May 1, 2017 or later, between or among the Southeast Morris County Municipal Utilities Authority (“SMCMUA”) or any representative of SMCMUA, the Morris County Municipal Utilities Authority (“MCMUA”) or any representative of MCMUA, and/or New Jersey American Water Company (“NJAWC”) or any representative of NJAWC, concerning or pertaining in any way to either (i) the January 6, 2012 Water Supply Agreement between NJAWC and MCMUA, or (ii) the September 10, 2002 Water Supply Agreement (amended June 1, 2012) between MCMUA and SMCMUA, including but not limited to any correspondence and communications relating to negotiations concerning renewal of either agreement.

PLEASE TAKE NOTICE that, provided you are notified that a motion to quash the subpoena has been filed, the subpoenaed evidence shall not be produced or released until ordered to do so by the court or the release is consented to by all parties to the action.

PLEASE TAKE FURTHER NOTICE that failure to comply with the commands of this Subpoena will subject you to the penalties provided by law.

Date: May 20, 2022

By: */s/ Phyllis Kessler, Esq.*
Phyllis Kessler, Esq.

CERTIFICATION OF SERVICE

I, Carol A. Jacoby, Paralegal at the law firm of Duane Morris, LLP, hereby certify that on December 2, 2022, I caused copies of the Intervenor's Letter Motion to Bar Rebuttal Testimony or Alternatively to Adjourn the Scheduled Hearing Dates to Allow Essential Discovery to be served via email upon each of the parties named on the service list attached to this filing. The above statements made by me are true. I am aware that if any statement made by me is willfully false, I am subject to punishment.

/s/ Carol A. Jacoby
Carol A. Jacoby

Dated: December 2, 2022

**IN THE MATTER OF
THE PETITION OF NEW JERSEY AMERICAN WATER COMPANY FOR A DETERMINATION
CONCERNING
THE FENWICK WATER TANK PURSUANT TO N.J.S.A. 40:55D-19
BPU DOCKET NO: W022010004
OAL DOCKET # PUC 00319-2022 S**

SERVICE LIST

Abe Silverman, Esquire General Counsel Board of Public Utilities Abe.Silverman@bpu.nj.gov	Mike Kammer, Director Board of Public Utilities Mike.Kammer@bpu.nj.gov	Carol Artale, Esquire Deputy General Counsel Board of Public Utilities Carol.Artale@bpu.nj.gov
Magdy Mekhaeil Division of Water Board of Public Utilities Magdy.Mekhaeil@bpu.nj.gov	Robert Brabston Executive Director Board of Public Utilities Robert.Brabston@bpu.nj.gov	David Schmitt, Esquire Board of Public Utilities david.schmitt@bpu.nj.gov
Office of Case Management New Jersey Board of Public Utilities board.secretary@bpu.nj.gov	Karriemah Graham, CPM, MS New Jersey Board of Public Utilities karriemah.graham@bpu.nj.gov	Brian Lipman, Esquire Director Division of Rate Counsel blipman@rpa.nj.gov
Christine Juarez, Esquire Division of Rate Counsel cjuarez@rpa.nj.gov	Susan McClure, Esquire Managing Attorney Water/Wastewater Division of Rate Counsel smcclure@rpa.nj.gov	Emily Smithman Water/Wastewater Division of Rate Counsel esmithman@rpa.nj.gov
Marilyn Silva Water/Wastewater Division of Rate Counsel msilva@rpa.nj.gov		
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Meliha Arnautovic, DAG Board of Public Utilities Meliha.arnautovic@law.njoag.gov	Brandon Simmons, DAG Board of Public Utilities Brandon.simmons@law.njoag.gov	Robert J. Donaher, Esquire Participant Karen Martin rdonaher@heroldlaw.com
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Pamela Owen, Esq. Office of Administrative Law pamela.owen@law.njoag.gov	Howard J. Woods howard@howardwoods.com	Charles Gurkas Board of Public Utilities charles.gurkas@bpu.nj.gov
Ann Whitman Participant Karen Martin awhitman@heroldlaw.com		