

EXHIBIT Z

PUBLIC VERSION

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

AQUA PENNSYLVANIA, INC.

DOCKET NO. A-2024-3049015

AQUA STATEMENT NO. 2

**DIRECT TESTIMONY OF
ZACH MARTIN**

**With Regard To
Operations
Integration of the System
System Assessment
Public Benefits**

April 2025

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1 **I. INTRODUCTION**

2 **Q. Please state your name and business address.**

3 A. My name is Zach Martin. My business address is 665 South Dock Street, Sharon, PA
4 16146.

5

6 **Q. By whom are you employed and in what capacity?**

7 A. I am employed by Aqua Pennsylvania, Inc. (“Aqua”), as the Western Pennsylvania Area
8 Manager.

9

10 **Q. Please provide a brief description of your education and work experience.**

11 A. I graduated from Kent State University with an Associate of Science degree in 2009 and
12 then a Bachelor of Business Administration in 2021. I have worked in the water and
13 wastewater industry for 21 years. I began my career in the utility industry in the spring of
14 2004 with the City of North Canton, Ohio as a water plant operator where I secured my
15 Class III Water Supply Certification from the Ohio EPA. I moved into a leadership role in
16 early 2009 as the Regional Water Superintendent for Portage County Water Resources
17 where I was responsible for managing plant and distribution employees in the county
18 operations of three water systems. I also served as backup to the wastewater superintendent
19 there for their 13 wastewater treatment plants and 113 lift stations. In 2010, I moved to
20 Aqua Ohio, Inc. (“Aqua OH”) as the Production Manager for the Struthers Division. There
21 I was responsible for the operations and maintenance of Aqua OH’s large surface water
22 system including: a five million gallon per day (“MGD”) surface water treatment plant,

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1 five source water lakes, and six dams. In 2013, I was promoted and moved to Aqua as the
2 Assistant Division / Production Manager, with a further promotion to Plant Manager II in
3 2017, a position I held through 2021. During those eight years I was responsible for
4 production and treatment operations of Aqua’s eight drinking water systems and three
5 wastewater systems in Western Pennsylvania. In 2021, I was promoted to the position of
6 Area Manager II where I am responsible for all regulated water and wastewater utility
7 operations in Western Pennsylvania. In total I have worked for the Aqua subsidiaries of
8 Essential Utilities, Inc. (“Essential”) for 15 years this June.

9 Today, I am responsible for leading a team of employees delivering drinking water
10 to customers and returning treated wastewater to the environment in nine counties of
11 Western Pennsylvania. I am involved in all aspects of operations including budgeting,
12 planning, employee relations, and process control. I am also involved in the business
13 development functions in my area of operations. I am a proud veteran of Operation Iraqi
14 Freedom III and served in the U.S. Army and Ohio Army National Guard.

15
16 **Q. Do you hold any professional licenses or certifications?**

17 A. Yes. I hold three environmental operator certifications in two states. I am a Class-A
18 certified water and Class-C certified wastewater operator in Pennsylvania, with 18
19 subclasses in total. I am also a Class 3 water supply licensed operator in the state of Ohio.
20 I have maintained operational laboratory certifications in both states as well.

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1 **Q. Have you previously testified before the Pennsylvania Public Utility Commission**
2 **(“PUC” or the “Commission”)?**

3 A. Yes. I have submitted testimony in Aqua Pennsylvania Wastewater, Inc.’s (“APW” and
4 together with “Aqua”, the “Company”) acquisitions of the wastewater systems of the
5 Greenville Sanitary Authority (“GSA”) at Docket No. A-2023-3041695, and the City of
6 Beaver Falls at Docket No. A-2022-3033138.

7

8 **Q. Are you sponsoring any Exhibits associated with the Company’s filing as a part of**
9 **your Direct Testimony?**

10 A. No.

11

12 **II. AQUA OPERATIONS, INTEGRATION OF THE SYSTEM, AND TECHNICAL**
13 **FITNESS**

14 **Q. Can you describe the location of Aqua’s operations in relation to the System?**

15 A. Yes. Aqua’s existing service territories cover various counties throughout Pennsylvania
16 with water operations in Mercer County, including Aqua’s Western Division office in
17 Sharon, Mercer County, Pennsylvania (which is 14 miles from the System). Aqua
18 currently operates two water systems within 12 miles of the System: the Shenango Valley
19 System (10 miles) and the Lake Latonka System (12 miles). In addition, APW currently
20 owns and operates the wastewater system in Greenville (formerly the GSA wastewater
21 system).

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1 **Q. What information can you provide at this time about how Aqua will integrate the**
2 **System into its operations?**

3 A. The operation of the System will be managed from Aqua’s Western Division office.
4 Management, customer service, regulatory compliance, engineering, financial, and
5 ancillary services will be provided seamlessly from there with support from Aqua’s
6 Southeastern Headquarters office, located in Bryn Mawr, Pennsylvania. Aqua plans to
7 offer employment to 11 current employees of the Authority to address the day-to-day
8 operations of the System. The existing employees coupled with the more than 35 front line
9 employees and management staff located within 14 miles from Greenville will provide
10 significant resiliency and improve operational support for the System. GWA employees
11 will benefit by inclusion in the knowledge sharing opportunities for employees across all
12 sectors of the Company. In concert with knowledge sharing, Aqua has, for more than a
13 decade, run a corporate-wide “One Company Initiative”, which solicits knowledge sharing
14 from all areas of the Company, benefiting all employees. This knowledge sharing benefits
15 customers of both the System, Aqua, and Essential’s other water utilities, by creating a
16 platform for sharing best practices; table-top exercises; standard operating procedures
17 (“SOPs”); lessons learned, including new operating techniques or technologies; safety
18 practices; and more.

19 Further, Aqua has a significant inventory of equipment that can be shared with the
20 System, including vehicles, excavation, heavy haul, portable generators, common supplies
21 and material storage, and mobile safety systems that can be moved between locations.
22 While physical connection of the GWA System is not anticipated, interconnection of

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1 security and computer systems will occur. Aqua has an integrated Supervisory Control
2 and Data Acquisition (“SCADA”) system used to operate and monitor operating systems,
3 such as pumps, treatment units, and status alarms, such as chlorine gas alarms. Aqua’s
4 SCADA system allows our operators to have better insights into the operations of the
5 system at all hours of the day and to be proactively alerted of any issues. [BEGIN

6 **HIGHLY CONFIDENTIAL]** [REDACTED]

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[REDACTED]

[REDACTED] . [END HIGHLY
CONFIDENTIAL]

6

7

8 **Q. How will other Aqua employees assist in the operation of the System, if needed?**

9

A. Aqua has more than 20 water operators in the Western Pennsylvania area, many holding dual water and wastewater certifications, who may be called upon to assist in the operations of the System. There are also 17 wastewater operators in the Western Pennsylvania area who are familiar with treatment systems and can follow SOPs in an emergency if needed. These operators are also supported by Aqua employees from across the Company, and neighboring subsidiaries of Essential, which will benefit customers through engineering and field service functions as well as electricians, mechanics, laboratory staff, and instrument technicians, which will benefit both the GWA employees and customers.

17

A few examples of operational support that will be provided by Aqua to the GWA System (which support does not exist today for the System) include:

19
20

(1) Environmental Compliance Audits conducted by staff that do not report to the local operation management group;

21
22

(2) Safety teams that conduct “housekeeping” and safety audits that seek to find and eliminate hazards and forecast for potential dangers;

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- 1 (3) A “Safety Learning Opportunity” program that allows any employee to report an
2 observed safety concern and a process that ensures the issue is resolved both
3 timely and completely;
- 4 (4) A full-time Aqua One-Call management team (Damage Prevention) that ensures
5 the requirements of Act 50 of 2017 are met and that staff receive regular training;
- 6 (5) Mapping updates by an in-house Geographic Information System (“GIS”) team;
- 7 (6) Water and wastewater process experts that will review the processes for targeted
8 parameters and if needed, assist in resolving any process upset situations and
9 compliance needs; and
- 10 (7) Emergency response support in the form of “national contracted vendors”, fleet
11 operations, and access to the approximately 600 Aqua employees who can deploy
12 to the location in support of Western Pennsylvania operations, all orchestrated
13 through Aqua’s Emergency Response and Communications process.

14 Continued cross-training benefits the System, as well customers of GWA and Aqua
15 alike. This sharing of employees from new acquisitions and existing systems is a mainstay
16 of our Pennsylvania water operations strategy where we have integrated water employees
17 for Shenandoah and Treasure Lake among others. This integration ensures operator
18 familiarity with these systems and ensures continuity of operations during normal and
19 emergency operations.

20

21 **Q. Does the physical location of the GWA System provide any benefits to existing Aqua**
22 **systems and customers through this acquisition?**

23 A. Yes. The GWA System is supplied by the Little Shenango River. The Little Shenango
24 River is a large tributary to the Shenango River which supplies Aqua’s Shenango system
25 located approximately 10 miles South of Greenville. Through the integration of Aqua’s
26 source water monitoring programs, laboratory information management systems (“LIMS”) and
27 hydraulic modeling, Aqua will gain critical upstream data forecasting changes and

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1 influence to the larger Shenango River that impacts more than 50,000 people downstream
2 in the larger Aqua water system. The proximity of the GWA System to the wastewater
3 system serving Greenville that Aqua acquired and began operating in February of this year
4 will provide two significant monitoring points on the watershed in addition to the data
5 currently collected at the Shenango system facilities. The watershed for these facilities
6 covers over 600 square miles in Northwestern Pennsylvania. The ability for the
7 withdrawals and return flows of these systems in the same watershed provides a unique
8 opportunity for Aqua to better manage the natural resources for the region.

9
10 **Q. Please describe how the GWA employees will be integrated into and develop their**
11 **careers at Aqua.**

12 A. Following acquisition of the GWA System, Aqua will implement site-specific training, as
13 well as off-site cross training in other Aqua facilities to promote continuous skills
14 improvement and optimization, and to introduce compliance metrics to shift the GWA
15 water treatment plant (“WTP”) into alignment with Aqua’s standards for operations. Aqua
16 will integrate existing GWA employees into Aqua’s existing production and distribution
17 departments of Western Pennsylvania and the Company as a whole. GWA distribution
18 and production personnel will report to seasoned supervisors and management within the
19 Western Pennsylvania operations team, and to State-wide management in Bryn Mawr, PA.

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1 **Q. Is the GWA System similar to other systems owned and operated by Aqua in the**
2 **region?**

3 A. Yes. The GWA System is located in Mercer County and only 10 miles North of Aqua's
4 larger Shenango Valley water system. As described further below, the GWA System is
5 very similar to the Shenango Valley system.

6
7 **Q. How are the Shenango Valley and GWA systems similar?**

8 A. The similarities are many. Both systems are supplied by surface water intakes on the
9 Shenango River watershed. Both systems operate conventional filtration plants with
10 gravity filtration to meet surface water turbidity requirements. Both systems utilize
11 chlorine for disinfection and chloramination for secondary disinfection in their distribution
12 systems. Both treatment plants were constructed in a similar era during the 1990s and
13 utilized similar construction methods and design criteria. The distribution systems of both
14 water systems are constructed of similar materials and use elevated storage tanks and
15 booster stations to supply their customers. Both systems have National Pollution Discharge
16 Elimination System ("NPDES") permits to return waste streams to the environment. GWA
17 discharges to the Little Shenango River which is upstream of the Shenango Valley system
18 which discharges to the Shenango River. Between the two water systems, Aqua owns the
19 former GSA wastewater system which also discharges to the Little Shenango River
20 upstream of the Shenango Reservoir and Shenango River. The similarity of the GWA
21 System to other Aqua systems will provide substantial public benefits through the
22 integration of the GWA System into Aqua.

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Q. How will customers benefit from the Aqua and GWA systems utilizing the same source of water?

A. Currently, customers of each water utility fund separate source water monitoring efforts, watershed permitting without coordination, and emergency response and drought contingency planning in duplicate. Under Aqua’s single ownership, the GWA source water programs will be brought into alignment with Aqua’s standards and enveloped into the larger Shenango programs removing the need for separate and duplicative efforts of these neighboring utilities and customer populations. Portions of these larger plans will be specific to each system while standardizing GWA to Aqua practices. Source water quality changes realized in GWA will provide early warnings to the Shenango system team. Aqua has also recently acquired the former GSA wastewater system and now has control to a large waste stream returned to the watershed between the Greenville and Shenango Valley water system intakes.

Q. How will customers benefit from the similarity of the systems’ treatment facilities and treatment technologies?

A. As separate entities, both utilities maintain separate inventories of critical process equipment to accommodate equipment failures and emergency situations that occur in the ordinary course of operations of a water system. Due to the similarities and proximity, GWA will benefit from national contract pricing that Aqua secures due to economies of scale. Aqua customers will benefit from additional purchase volumes needed to support

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1 the GWA system, which provides further leverage for competition in the marketplace often
2 leading to volume-based discounts (and ultimately reduction in operations and
3 maintenance expense). So, a reduction in unused, but necessary components, chemicals,
4 and equipment in inventory will occur and the components and equipment used to support
5 the system will be at a reduced cost.

6
7 **Q. Can you provide examples of the types of efficiencies you mentioned in a recent**
8 **acquisition?**

9 A. Yes. Since the closing of the GSA transaction on February 1, 2025, the Company has
10 realized significant cost savings in less than 60 days for the chemicals supplied to the
11 treatment facility. By consolidating the GSA wastewater treatment plant into the
12 Company's established national contracting and supply chain programs, costs were
13 reduced as follows:

14 Aluminum Sulfate – reduced by 50.73% per gallon delivered

15 Chlorine Gas – reduced by 54.29% per pound delivered

16
17 **Q. Can you provide examples of a reduction in inventory in recent acquisitions?**

18 A. Yes. Since closing on the GSA system, APW has reduced the inventory of chlorine gas
19 stored at the facility, given the ability to draw from stores of the chemical as needed, which
20 is used and inventoried at Aqua's Shenango plant in close proximity and in larger
21 quantities. By reducing dependency on chlorine gas and planning for the conversion to
22 safer alternatives like sodium hypochlorite, Aqua can realize significant economies of

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1 scale. This transition not only enhances safety but also streamlines operations, leading to
2 substantial cost reductions. Instead of developing and maintaining separate safety
3 programs at the former GSA and GWA, Aqua will integrate all systems into one uniform
4 and proven plan for compliance with state and federal regulations including those
5 established by the PUC. This consolidation simplifies regulatory adherence, reduces
6 administrative overhead, and leverages Aqua's established expertise in managing safety
7 programs. The unified approach ensures consistent safety standards across all operations,
8 ultimately benefiting the Company, employees, and the community through improved
9 efficiency and reduced risks.

10

11 **Q. Have there been safety improvements realized through the optimization of a recent**
12 **acquisition?**

13 A. **[BEGIN HIGHLY CONFIDENTIAL]** [REDACTED]
[REDACTED]

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█ [REDACTED]

█ [REDACTED]

█ [REDACTED]

█ [REDACTED]

█ [REDACTED]

█ [REDACTED] [END HIGHLY

7 CONFIDENTIAL]

8

9 **Q. Do you believe that Aqua is technically fit to own and operate the GWA System?**

10 A. Yes.

11

12 **Q. Are there any ways Aqua has demonstrated itself to be fit to operate this System after**
13 **conducting additional investigation and review?**

14 A. Aqua has extensive experience replacing water infrastructure while also navigating strict
15 Pennsylvania Department of Environmental Protection (“DEP”) regulations to install
16 chemical treatment systems, distribution facility components, and to optimize the System
17 for environmental compliance at the best cost to the customers.

18

19 **Q. How does Aqua maintain and enforce safety, compliance, and security programs**
20 **throughout its operations?**

21 A. Aqua requires a high level of employee training and monitors completion of training
22 requirements. Safety programs are trained initially at length and reinforced through annual

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1 refresher training. Aqua employs internal safety experts, internal compliance experts, and
2 routinely conducts internal audits of operations. Aqua also contracts with external experts
3 to perform random inspections and audits of employee and contractor operations. These
4 cover operations throughout our systems, including maintenance and construction
5 activities undertaken in and around the communities we serve.

6
7 **Q. Please summarize why you believe Aqua is technically fit to own and operate the**
8 **System.**

9 A. My explanation of Aqua's current operations, the System's similarity to other systems
10 operated by Aqua, and operational support that will be provided by Aqua, an experienced
11 water utility, all support a finding that Aqua is technically fit to own and operate the
12 System, and that, through my discussion above, show there are substantial public benefits
13 to this transaction. In addition to this, I detail below the current areas for improvement
14 needed in the System, as well as the additional process improvements identified that will
15 be remedied by Aqua. Aqua's planned improvements in this regard establish additional
16 substantial affirmative public benefits.

17
18 **III. SYSTEM ASSESSMENT & CURRENT OPERATION OF THE GWA SYSTEM**

19 **A. GENERAL SYSTEM ASSESSMENT**

20 **Q. Has Aqua analyzed the System and its current operations?**

21 A. Yes, it has. Below, I will provide detail on Aqua's assessment of the System generally and
22 identification of specific issues that Aqua will address. Among the issues identified, in

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1 general, include equipment problems, safety and security problems, and the lack of an asset
2 management plan or computerized maintenance management system. I will also identify
3 how Aqua proposes to address these issues as the owner and operator of the System, and
4 how such ownership and operation will result in significant public benefits.

5

6 **Q. Did you visit the facilities?**

7 A. Yes, multiple times. Specifically, we conducted initial due diligence and a post-agreement
8 in-depth review to assess the operations, facilities, personnel, standard operating
9 procedures, compliance, safety, and security of the System.

10

11 **Q. How old is the GWA WTP?**

12 A. The WTP was built in 1994 and has served the community for over three decades. While
13 it has undergone some reactive maintenance over the years, Aqua recognizes the need for
14 a more rigorous and proactive approach to ensure its continued reliability and efficiency.
15 Under Aqua's ownership, the WTP will benefit from comprehensive improvements,
16 including enhanced safety measures, updated equipment, and a robust asset management
17 plan. These upgrades will not only address current challenges but also position the WTP
18 for long-term success, ensuring safe and reliable water service for the community.

19

20 **Q. Please describe your findings and examples that can be improved by Aqua's**
21 **ownership of the System.**

22 A. Some of the areas for improvement relate to the following observed issues:

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- 1 ▪ The filter pipe gallery is a confined space;
- 2 ▪ High Service Pumps are original and have not been serviced since
- 3 installation;
- 4 ▪ “New” filter media has already been fouled and requires cleaning and/or
- 5 replacement;
- 6 ▪ The WTP recently froze during a power failure due to inadequate and un-
- 7 serviced HVAC equipment;
- 8 ▪ Raw water pump failures in 2022 and 2023; and
- 9 ▪ Inability to process waste during cold weather due to freezing residuals
- 10 management tanks.

11

12 **Q. Can you expand upon any of these as an example?**

13 A. Yes. The WTP experienced a significant failure in its low service “raw water” pumps in

14 2022, highlighting the critical need for preventative maintenance in this pumping system.

15 There was a period where both low service pumps were offline and temporary pumping

16 had to be sourced in an emergency condition. One pump was damaged by operator error,

17 and the other was quickly broken and offline as well. Aqua was contacted for mutual aid

18 when the plant was unable to operate with installed equipment. Unfortunately, this learned

19 lesson does not seem to be applied to the high service pumps, which remain original and

20 have not been serviced since install. This oversight poses a risk of similar failures and

21 emergency situations, jeopardizing the plant's operational reliability and safety.

22 Aqua recognizes the importance of proactive preventative maintenance and will

23 implement a comprehensive preventative maintenance program to ensure all critical

24 equipment, including the high service pumps, are regularly inspected and serviced. This

25 approach will mitigate the risk of future failures, enhance system resilience, and ensure

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1 continuous, reliable service to the community with cost controls and efficiency resulting in
2 the best possible drinking water supply at the best possible price. Emergency failures and
3 even operator failures are costly and remove the System's ability to control and plan for
4 costs. Pumps of that age are most definitely worn and not pumping at design specifications.
5 We expect to find that they are inefficient and result in longer runtimes at lower flow rates
6 and higher electric costs. Aqua continuously monitors plant and pump performance and
7 maintains equipment to also maintain peak efficiency and low costs of operation.

8
9 **Q. Can you please further describe why you believe this System will benefit from Aqua's**
10 **ownership?**

11 A. Based on my site visits, discussions with operations personnel, and observation of WTP
12 activities, I note the following areas of concern for future safe, adequate, and reliable water
13 service for the GWA System:

- 14 ▪ Lack of Licensed Operators, Access to Training, and Redundancy of
15 Operators;
- 16 ▪ Limited or Lacking Process Control Testing;
- 17 ▪ Laboratory Sample System Management;
- 18 ▪ Lack of Emergency Preparedness Planning;
- 19 ▪ Lacking Safety & Security Equipment & Training;
- 20 ▪ Hazardous Chemical Storage, Labeling, and Safety;
- 21 ▪ Inadequate SCADA and operator alarm systems;
- 22 ▪ Insufficient emergency/standby power generation; and
- 23 ▪ Non-use of Asset Management or Compliance Management Software
24 Systems.

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Q. Can you explain the current staffing of the WTP and any related challenges experienced?

A. Based on my experience, the team operating the GWA WTP has faced challenges in securing qualified and skilled laborers, which has impacted the efficiency of the WTP's operations. However, Aqua provided valuable feedback to the GWA team which they have accepted and begun to implement. This demonstrates their willingness and ability to improve with the guidance and leadership from an experienced operator like Aqua.

Aqua's extensive resources will support the GWA team in enhancing their skills and optimizing the WTP's performance. Internally, Aqua utilizes Production Specialists and a dedicated Treatment & Compliance department, which provide expert oversight and ensure adherence to best practices and regulatory standards. These internal resources will be instrumental in guiding the GWA team through the necessary improvements and operational enhancements.

Additionally, Aqua leverages external resources such as Decision Blue from Fontus Blue, a specialized consulting service that offers advanced decision-making tools and strategies for water treatment and compliance. The combination of Aqua's internal expertise and external support will empower the GWA team to address challenges and achieve a higher standard of operational excellence.

To ensure the team operates within Aqua's standards, it is crucial to implement clear Standard Operating Procedures ("SOP"). These SOPs will provide a structured framework for all operational activities, ensuring consistency and reliability in the WTP's

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1 processes. Training programs will be developed to familiarize the GWA team with these
2 SOPs, enabling them to perform their duties effectively and confidently.

3 By establishing and adhering to these SOPs, the GWA team will be able to correct
4 the course and maintain high standards of operation. This structured approach will foster a
5 culture of continuous improvement, where employees are equipped with the knowledge
6 and tools to meet WTP performance optimization. With Aqua's leadership and
7 comprehensive support, the GWA team is poised to enhance their capabilities, ensuring
8 reliable and safe water service for the community.

9
10 **Q. What water treatment process control and treatment operations did you observe at**
11 **the WTP?**

12 A. The WTP is encountering operational challenges due to the absence of process controls
13 and SOPs. Many processes are operating outside acceptable conditions, leading to facility
14 degradation and potential future violations. Specifically, the coagulation, flocculation, and
15 sedimentation processes within the Superpulsator clarification system are not functioning
16 as designed, complicating treatment and filtration. During abnormal or changing source
17 water conditions, the absence of SOPs and process controls results in the over-application
18 of chemicals in pre-filter treatment, causing carryover and excessive fouling of the filter
19 media.

20 Excessive application of caustic soda and poly aluminum chloride in water
21 treatment processes can lead to significant fouling of filter media over time. Overfeeding
22 caustic soda can cause pH levels to rise excessively, leading to the precipitation of minerals

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1 and other substances that clog the filter media. Similarly, poly aluminum chloride, a
2 coagulant, can cause over-coagulation, resulting in the formation of large flocs and
3 suspended solids that block the passageways of the filter media. This entrapment of
4 suspended solids and flocs leads to high pressure drops, reduced filtration efficiency, and
5 shorter operating runs. Over time, this fouling necessitates premature cleaning or
6 replacement of the filter media, disrupting normal operations and increasing maintenance
7 costs.

8 When both caustic soda and poly aluminum chloride are overfed simultaneously,
9 as has been done here, the negative impacts on filtration are compounded. The excessive
10 caustic soda raises the pH levels, causing the precipitation of minerals such as calcium
11 carbonate, which further clogs the filter media. At the same time, the overfed poly
12 aluminum chloride leads to the formation of large, dense flocs that obstruct the filter media.
13 This dual fouling effect results in severe clogging, high pressure drops, and significantly
14 reduced filtration efficiency. Severe fouling typically involves the accumulation of dense
15 mudballs, significant media agglomeration, or extensive clogging by organic and inorganic
16 materials throughout the media and underdrains. In such cases, even chemical cleaning
17 may fail to restore the filter media to its original condition, leading to persistent high
18 pressure drops, reduced filtration efficiency, and frequent operational disruptions.

19 If cleaning efforts, including backwashing and chemical treatments, do not yield
20 satisfactory results, it may be necessary to replace the filter media entirely. Replacement
21 ensures that the filtration system can operate effectively and maintain water quality

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1 standards. Regular monitoring and maintenance are crucial to prevent severe fouling and
2 extend the lifespan of the filter media.

3

4 **Q. Please further describe the issues with the filter media.**

5 A. Although the filter media in the WTP was replaced in 2021, it required premature cleaning
6 within the first two years, achieving only partial recovery of the filter media in a test filter.
7 On average, properly maintained filter media should last for 10 years before cleaning is
8 required.

9 External consultants have documented the poor condition of the filter media and
10 recommended significant operational changes, but these recommendations have not been
11 fully implemented at the WTP. Recent minor improvements were made to the distribution
12 and application of caustic soda to settled water, following recommendations from Aqua.
13 However, overfeeds of caustic soda and poly aluminum chloride in pre-filter treatment
14 continue to damage the new filter media, and only minor changes have been made to
15 address this issue. Aqua plans to train, implement, and monitor changes to improve
16 operations at the WTP. In addition, Aqua's capital plan for GWA will include filter media
17 and nozzle replacement.

18 In Figure 1, anthracite coal filter media from a plant with similar media is shown
19 with some slight fouling in the image to the left, and then three images of the media after
20 a chemical cleaning on the right. This is from a water plant in Hollywood, Florida.

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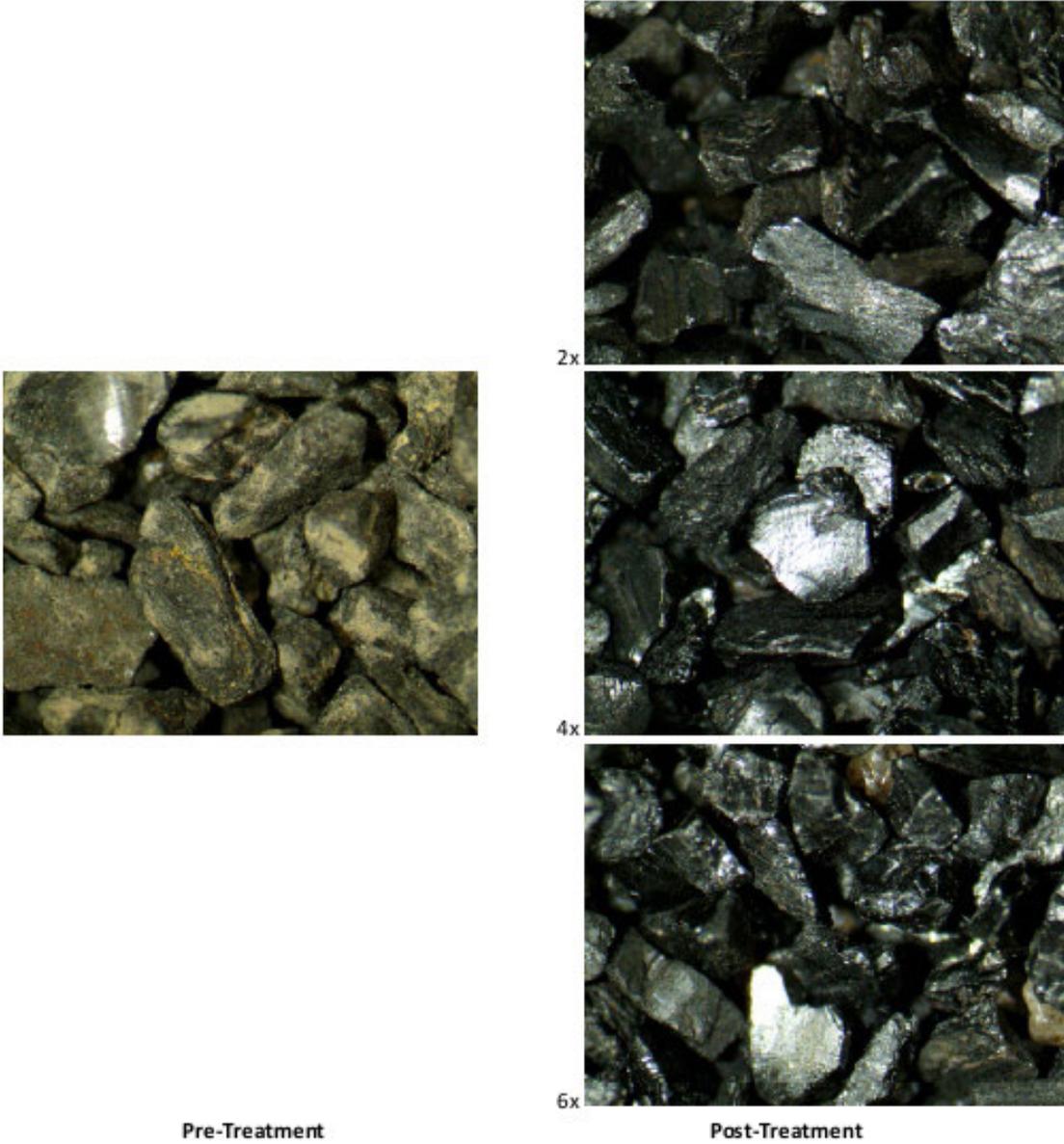
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1

Figure 1

Media Image Analysis



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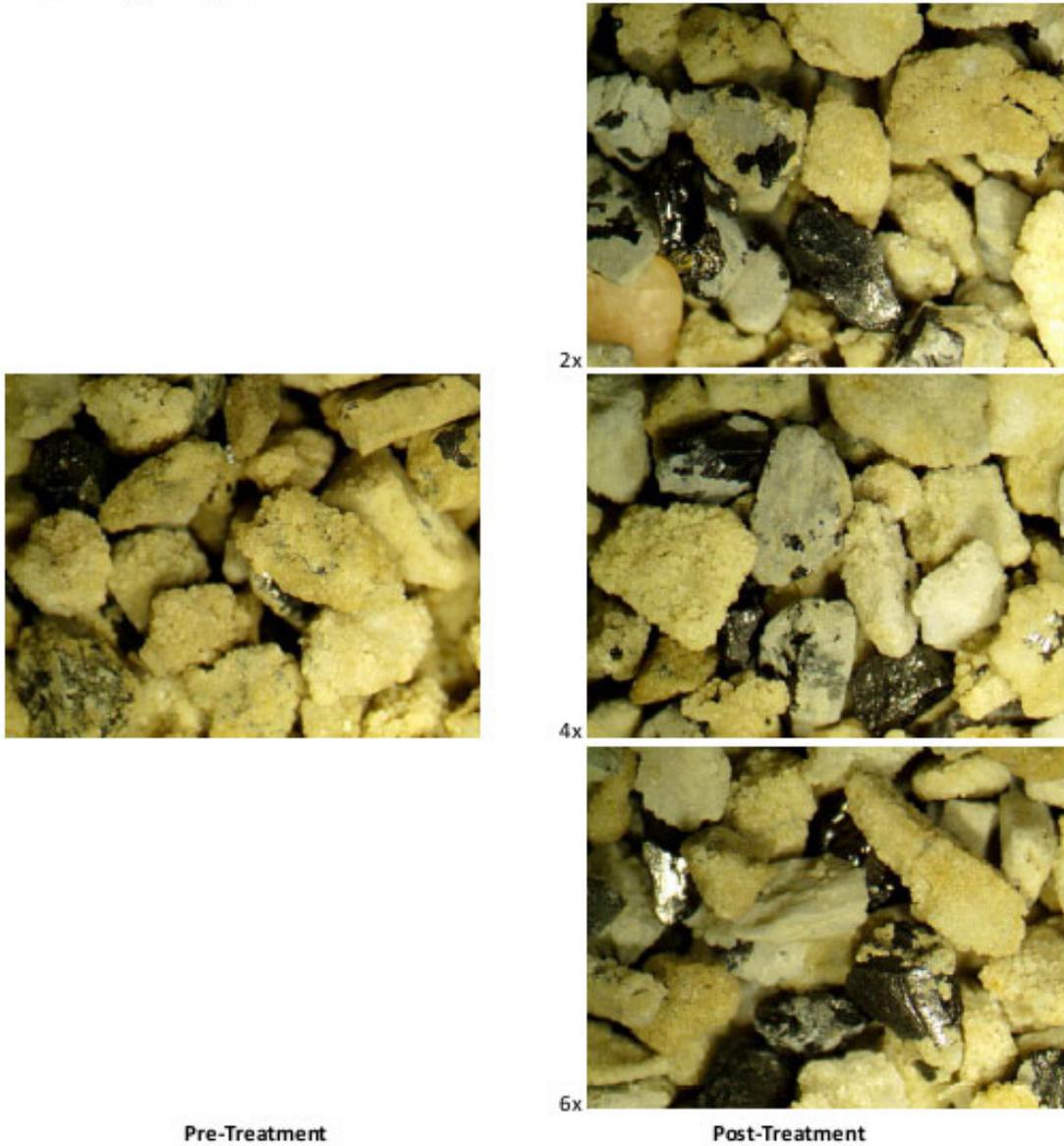
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1 In Figure 2, GWA filter media is shown with media as-is on the left showing severe
2 fouling, and three increasing strengths of chemical cleaning that had little to no effect on
3 the fouled media.

4 **Figure 2**

Media Image Analysis



5

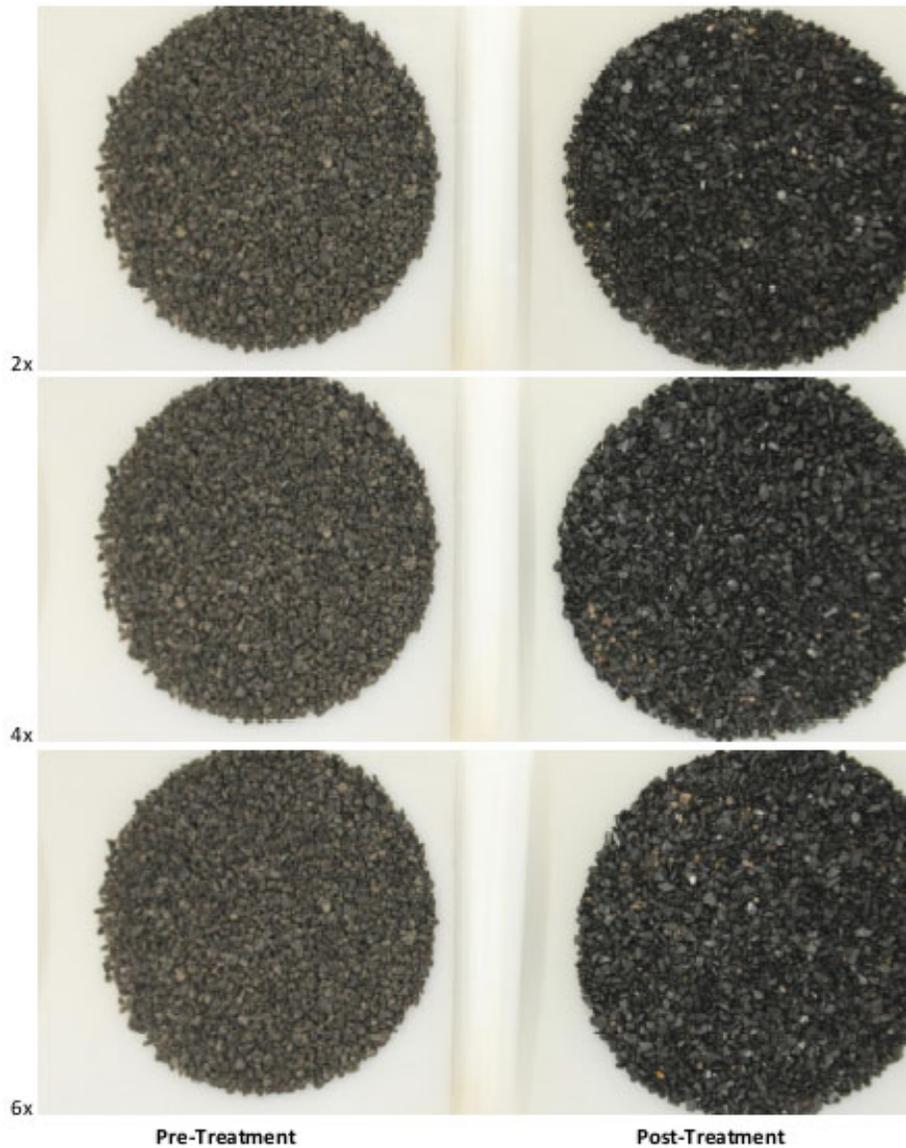
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1 Below are images of the larger samples of collected anthracite coal filter media
2 from the reports of each plant. Figure 3 is from the Hollywood, Fl plant, and Figure 4 is
3 from GWA.

4 **Figure 3**



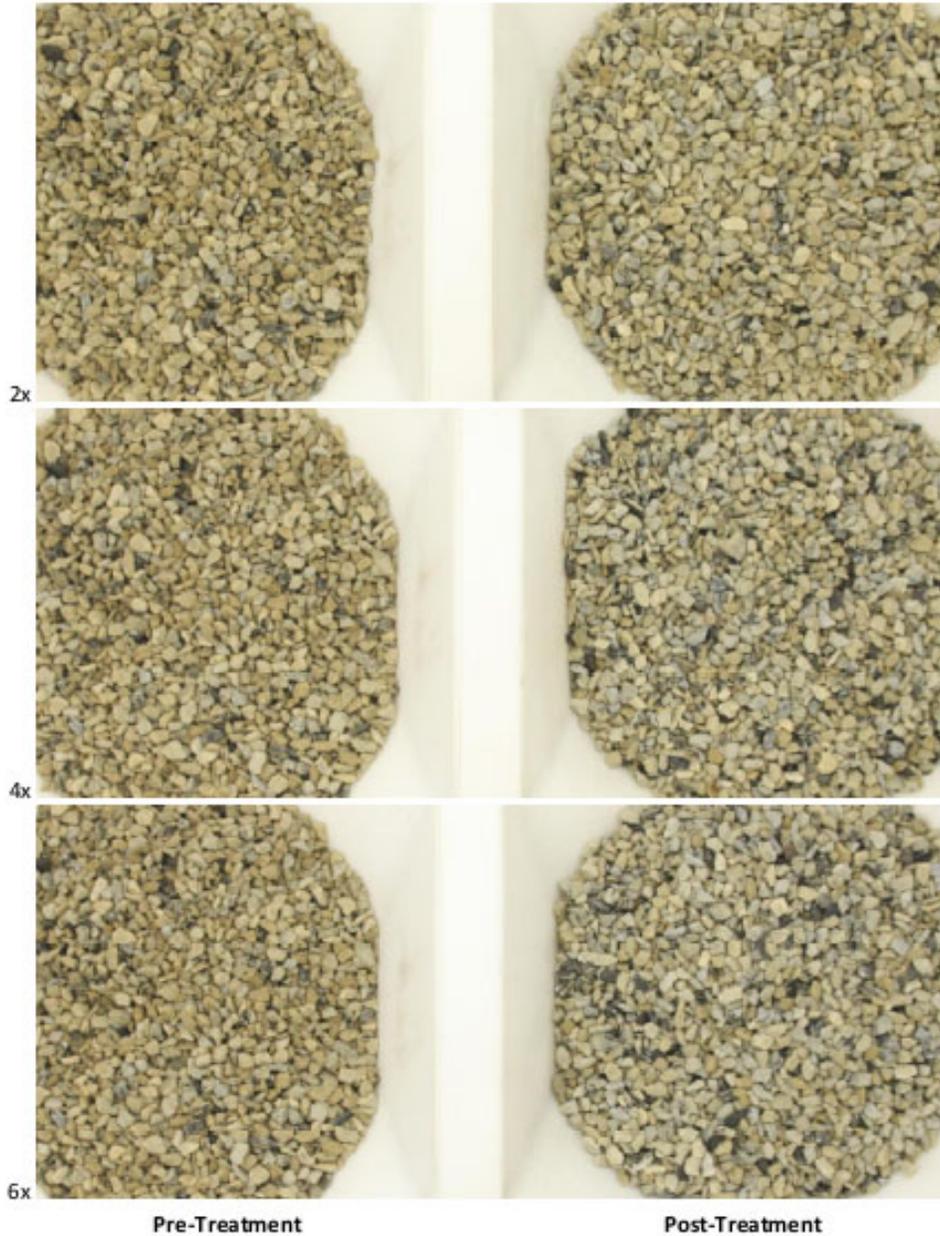
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1

Figure 4



2
3

4 **Q. Please expand on further concerns of process control and treatment operations.**

5 A. Also of significant concern is that the entire WTP process is started and stopped daily
6 during the single 8-hour shift of scheduled operations. The practice of starting and stopping

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1 treatment processes like the Superpulsator poses significant challenges to the efficiency
2 and reliability of water treatment operations. Frequent interruptions can lead to inconsistent
3 water quality, as the System requires time to stabilize each time it is restarted. This can
4 result in poor coagulation and flocculation, leading to higher turbidity levels and potential
5 violations of water quality standards. Additionally, the mechanical components of the
6 Superpulsator, such as pumps and valves, experience increased wear and tear due to the
7 repeated cycles of starting and stopping, which can shorten their lifespan and increase
8 maintenance costs.

9 When the WTP is offline, there is a lack of continuous monitoring of changing river
10 and raw water quality. River water quality can fluctuate significantly due to seasonal
11 variations, rainfall, and other environmental factors even on a day-to-day basis on the Little
12 Shenango River. These changes can impact turbidity, temperature, and the presence of
13 contaminants, which are critical parameters for effective water treatment. Without
14 continuous monitoring, the WTP may not detect these variations in real-time, leading to
15 suboptimal treatment and potential non-compliance with water quality standards.

16 The DEP has stringent requirements for surface water filtration systems, especially
17 those that start and stop frequently. These systems must maintain and report additional
18 turbidity monitoring to bring filters on and offline to ensure that treated water meets
19 minimum quality standards. Increased regulatory and monitoring requirements include
20 comprehensive turbidity monitoring, regular reporting, and adherence to specific treatment
21 technique requirements. The DEP mandates continuous monitoring and reporting to ensure
22 that water quality remains within acceptable limits, even during periods of operational

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1 interruption. Failure to comply with these requirements can result in permit violations,
2 fines, and increased scrutiny from regulatory bodies. Many of these monitoring
3 requirements are simplified in continuous operations and provide operators with
4 opportunities for minor adjustments based upon continuous trends instead of establishing
5 and stopping treatment each day from scratch.

6
7 **Q. How will Aqua address these issues?**

8 A. To address these issues, Aqua will conduct a thorough facility evaluation and audit to
9 assess the operational needs and implement improvements. This comprehensive review
10 will identify areas requiring attention and ensure that the Superpulsator and other treatment
11 processes operate as designed. A slow and steady continuous operation will be evaluated,
12 allowing the Superpulsator to maintain optimal conditions for coagulation, flocculation,
13 and sedimentation, ensuring consistent water quality. By avoiding frequent interruptions,
14 the System can operate more efficiently, reducing the risk of process disruptions and
15 emergency situations. Continuous operation also minimizes mechanical stress on
16 equipment, extending its lifespan and reducing maintenance requirements. Furthermore, it
17 allows for better optimization of chemical dosages and operational parameters, leading to
18 more effective treatment and lower operational costs.

19 Optimizing for demand is another crucial aspect of continuous operation. By
20 closely monitoring water demand and adjusting the treatment process accordingly, the
21 System can operate at peak efficiency. This involves using advanced monitoring and
22 control systems to track real-time data on water usage and quality, enabling operators to

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1 make informed decisions about process adjustments. By aligning treatment capacity with
2 actual demand, the System can avoid overproduction and underutilization, further
3 enhancing efficiency and reducing costs. Aqua is committed to implementing these best
4 practices to ensure the Superpulsator and other treatment processes operate smoothly and
5 effectively.

6
7 **Q. Please further expand upon your concerns when visiting the WTP.**

8 A. The pre-filter treatment system is known as a Superpulsator. Due to the practice of starting
9 and stopping the facility, coupled with other operational decisions, the WTP is not
10 operating as designed. The Superpulsator treatment process is designed to combine
11 flocculation, sedimentation, and clarification stages into a single unit, providing efficient
12 and continuous removal of impurities. However, when this process is not used as designed,
13 several negative impacts can arise. Improper operation can lead to inadequate removal of
14 sludge, resulting in a buildup of thick, heavy mud in the concentrator. This accumulation
15 compromises the system's efficiency and increases maintenance requirements.
16 Additionally, the hydraulics of the system may fail to create sufficient head to carry the
17 sludge out, further exacerbating the problem.

18 Failure to maintain the Superpulsator as intended can also lead to inconsistent water
19 quality, as the process relies on precise control of chemical dosages and operational
20 parameters. Deviations from the designed operation can result in poor coagulation and
21 flocculation, leading to higher turbidity levels and potential violations of water quality
22 standards. Moreover, the lack of continuous monitoring and adjustment can cause

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1 operational disruptions, increasing the risk of emergency situations and compromising the
2 safety of both the WTP and the surrounding community.

3
4 **Q. How would Aqua address the staffing challenges and the concerns regarding the**
5 **condition of the System identified above?**

6 A. Aqua maintains a staff of compliance and operations experts that will implement changes
7 upon closing of the transaction to ensure SOPs are in place and followed and processes and
8 equipment are operated and maintained to maximize operation under design and permitted
9 conditions. The Company also has robust preventative and corrective maintenance
10 programs with asset- and process-based minimum standards of service (discussed in detail
11 below) for mechanical and maintenance personnel to adopt. We encourage operators to
12 secure DEP operating licenses and then support those operators with continuing education
13 assistance. Aqua has robust onboarding and training programs for supervisors and
14 operators that encompass all facets of operations from safety to process control.

15
16 **Q. What else would Aqua do to ensure proper maintenance of the System?**

17 A. The GWA System would receive an intensive post-acquisition review by our engineers,
18 process control specialists, and an infusion of experienced operators and leadership would
19 help establish the operating protocols and bring the plant back to operating as designed.
20 This typically occurs within 30 days of the start of operations. Process control testing
21 criteria, including adequate laboratory equipment, will be provided on-site and operators
22 trained to perform tests and interpret the results, from which process control adjustments

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1 can be made with confidence. The Aqua-owned state certified laboratory in Bryn Mawr
2 will support this facility from the start with certified analytical results and a quick
3 turnaround time. Continued observation of the process by both on-site personnel and
4 broader Aqua resources would be a constant through operations, allowing independent
5 evaluation of the processes to ensure nothing is missed.

6 Maintenance activities would immediately improve as a result of Aqua's defined
7 asset management program, which would assure proactive work orders are issued for the
8 needs identified for the WTP, equipment, and distribution system. Maintenance staff
9 would be supported by outside services and vendors to ensure the specialty elements of the
10 maintenance program are undertaken correctly. Aqua's workforce development program,
11 from recruitment through continued education, supported by management and technology,
12 is a significant benefit to GWA and ensures WTP reliability and environmental
13 compliance.

14
15 **Q. Does the GWA staff perform adequate process control testing?**

16 A. No. There are limitations and challenges to this due to the WTP construction that Aqua
17 will work to improve. Aqua requires turbidity analysis via grab sampling to confirm
18 continuous analyzers. Many of the sampling points and critical analyzers are installed in
19 confined spaces that cannot be easily accessed.

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1 **Q. Does the GWA employ a LIMS to track analytical results and compliance with critical**
2 **standards in its laboratory space?**

3 A. No, it does not. Physical bench sheets are used with common spreadsheet applications
4 (e.g., excel) for reporting of testing results. These bench sheets are not capable of being
5 audited and lack critical access controls and compliance adherence. This means that any
6 changes to the data are not automatically logged to a unique user, and justification may not
7 be required to submit a change in testing results.

8
9 **Q. Please explain how Aqua will address this issue of data tracking and confidence.**

10 Aqua will implement its LIMS program to ensure that analytical data collection and
11 analysis follows processes and procedures, including quality assurance and quality control
12 standards. Data that is entered into LIMS includes the regulatory and process control data
13 which includes sample results and plant process key performance indicators. Internal and
14 external laboratory analysis will be cataloged in the LIMS system. The data will be tracked
15 and is fully auditable as each employee will have individual credentials so that any entries
16 are tied to that specific user with process checks in place so that any changes to results
17 must be authorized and notes provided to explain the change.

18 In the WTP, Aqua will implement its Water Information Management System
19 (“WIMS”) program for the WTP operator to interface with during the daily shift work.
20 While paper bench sheets can be maintained for quick reference and communications at
21 shift changes and from day to day, all process control testing and operating conditions of
22 the plant will be recorded in WIMS. Similar to the LIMS, the data will be tracked and is

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1 fully auditable as each employee will have individual credentials so that any entries are
2 tied to that specific user with process checks in place so that any changes to results must
3 be authorized and notes provided to explain the change. These systems foster and improve
4 transparency from operations and lab teams to Aqua management, and ensure optimization
5 is achieved, documented, and maintained to the benefit of the customers.

6

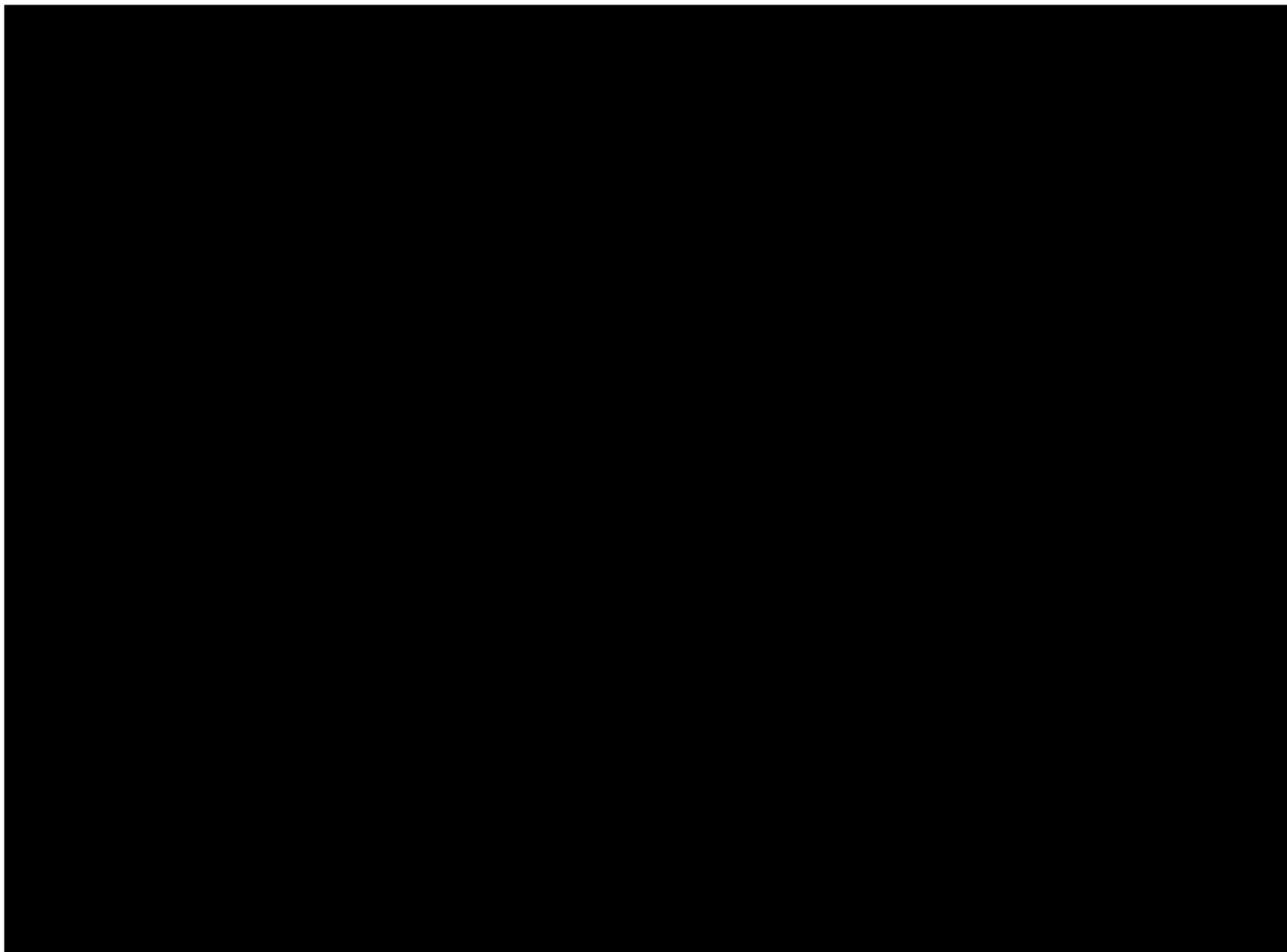
7 **B. HAZARDOUS GAS**

8 **[BEGIN HIGHLY CONFIDENTIAL]**

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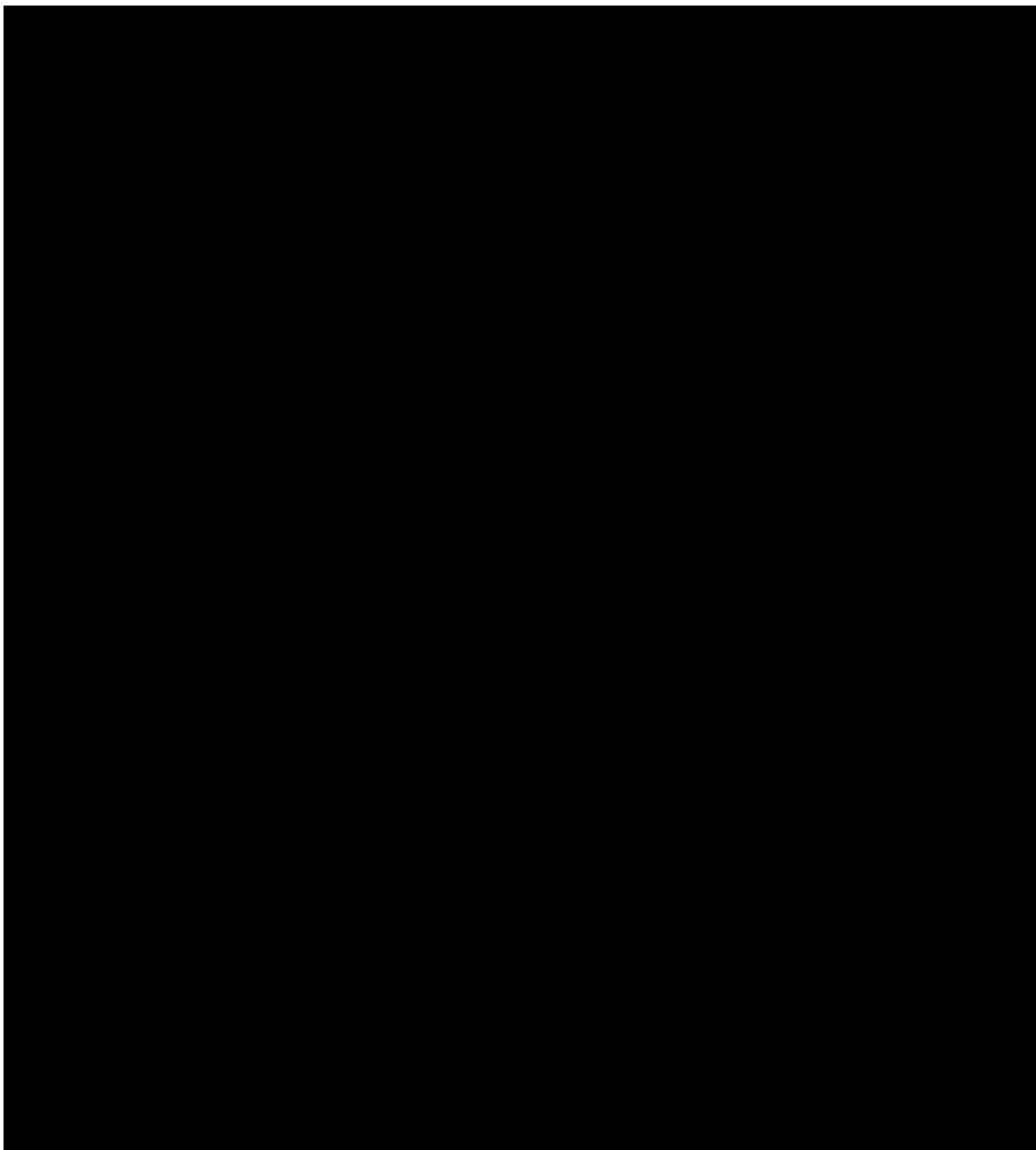
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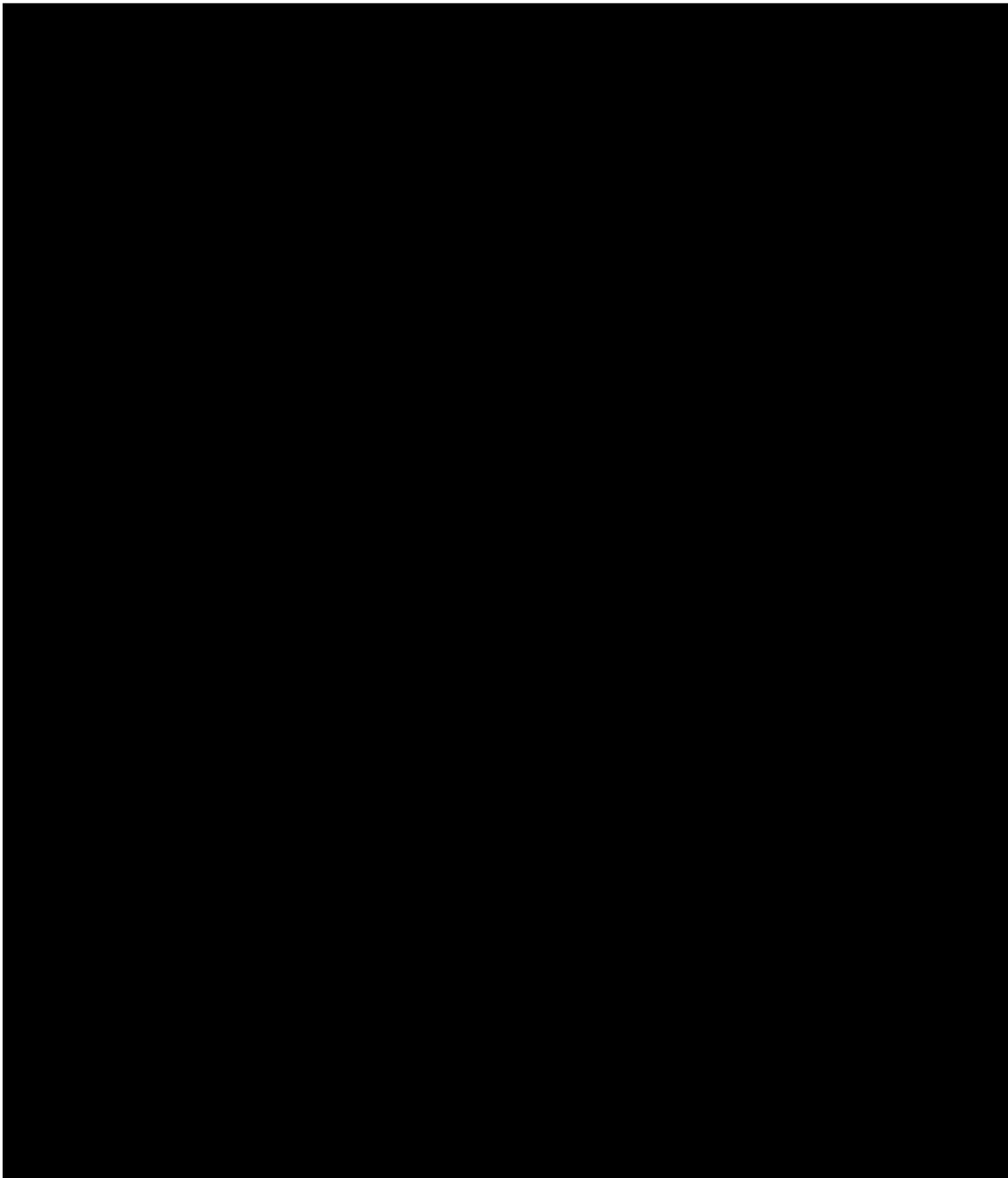


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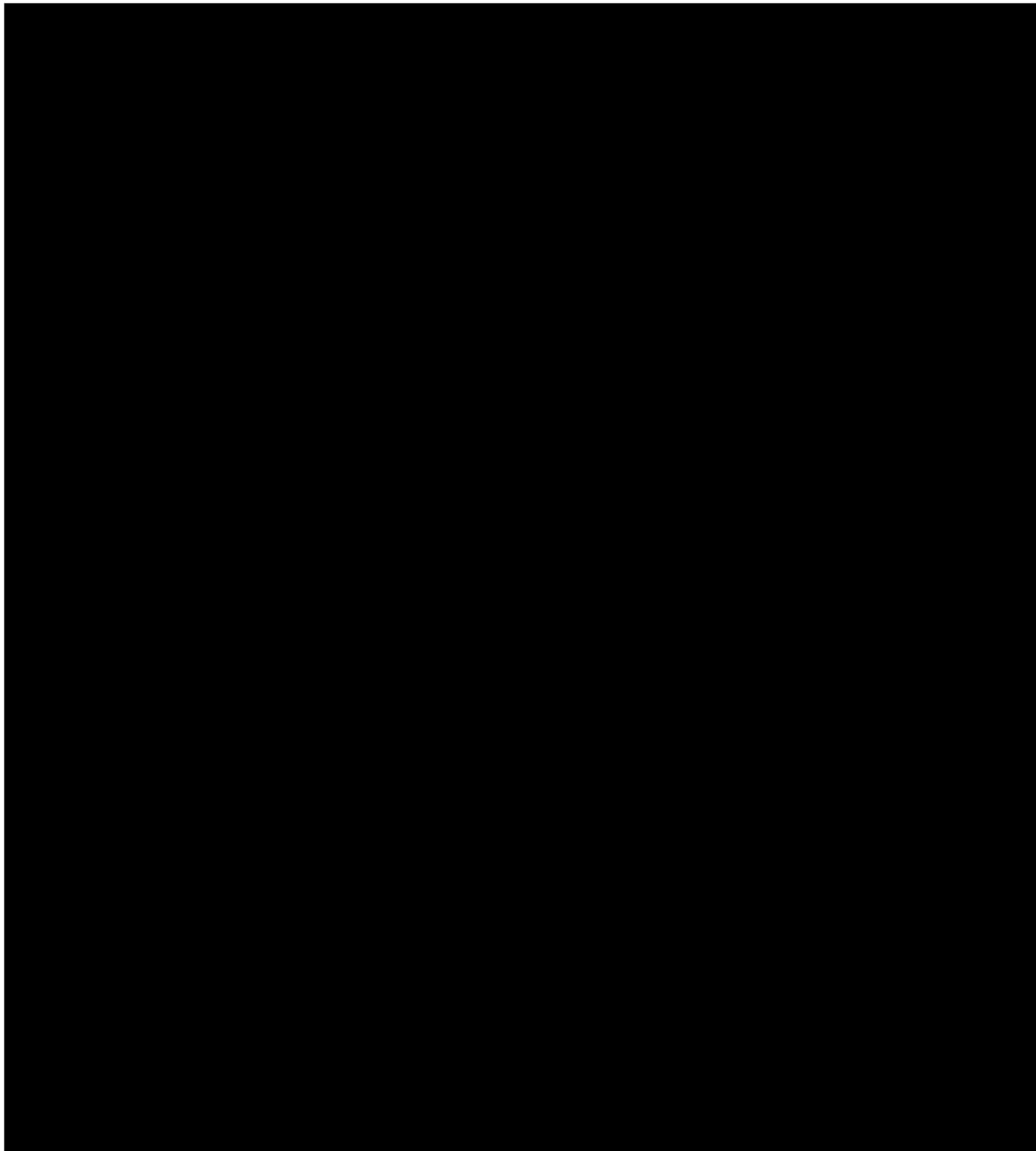
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[END HIGHLY CONFIDENTIAL]

11

12 **Q. How will Aqua address general safety issues?**

13 A. Issues will be cataloged and will become a part of Aqua’s already robust capital and
14 operational plan to be addressed within Year 1 of ownership. Our safety teams and
15 operational management will make these items a priority in Year 1 by educating our new
16 employees in the safety requirements of Aqua, investing to correct deficiencies, and
17 provide on-going safety housekeeping, near miss reporting, and safety audits on a regular
18 basis. Safety of our employees, most who are members of the community, is our priority
19 so they return safely home. The public benefits of this cannot be measured.

20

21

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1 **Q. Is there a system in place at the GWA to document Safety Learning Opportunities?**

2 A. No. Aqua, however, implements a Safety Learning Opportunities program where all
3 employees are encouraged to look for and report potential and real unsafe conditions so
4 they can be addressed in a timely manner. This program is key to both creating a safe
5 working environment and proliferating a culture of safety. The GWA employees currently
6 have little support in the way of safety programing, and this program will be beneficial
7 both to them, their families, and the community at large.

8

9 **[BEGIN HIGHLY CONFIDENTIAL]**

10 [REDACTED]

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[END HIGHLY

20 **CONFIDENTIAL]**

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1 **Q. Does the facility have emergency/standby power generation on site?**

2 A. Yes, however, only via portable generator. The portable generator is stored on an adjacent
3 parcel and stored in a garage. Aqua will evaluate a safe permanent connection that will
4 keep the generator at the ready without requiring dangerous electrical connections during
5 an emergency situation. Aqua will also implement preventative maintenance and routine
6 exercising programs to ensure that the generator is maintained at a state of readiness to
7 serve the needs of the system and community.

8

9 **D. ASSET MANAGEMENT**

10 **Q. Does GWA have an asset management plan or computerized maintenance**
11 **management system (“CMMS”) in place and what is Aqua’s plan for post-Closing**
12 **asset management?**

13 A. The team at the GWA maintains a very basic calendar and spreadsheet to track preventative
14 maintenance needs. Some written records are maintained to track assets over time. Aqua
15 will implement several layered approaches to asset management through financial
16 modules. Aqua will also implement a CMMS system to schedule and automate
17 preventative maintenance schedules for the employees. This system will also capture
18 reactive and corrective maintenance tasks for all aspects of the System. Aqua will work
19 with the GWA team to fully document existing SOPs and to employ Aqua’s SOPs where
20 none exist through these work order systems to record tacit knowledge and improve
21 succession planning and operational consistency.

22

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1 **Q. Are there specific examples of assets and processes that are not operating correctly**
2 **due to lack of maintenance or expertise? If so, does Aqua have a plan to remedy the**
3 **situation?**

4 A. Yes. In recent visits it was communicated that mixers and heat trace freeze protecting
5 devices had failed in the two exterior tanks at the WTP. The duration of the failure was
6 unclear, but was known in the Fall of 2024 and not addressed. The failure of mixers in open
7 top tanks at a treatment plant can have significant consequences, especially during winter
8 months. Mixers play a crucial role in maintaining the uniformity of the water and
9 preventing the accumulation of ice. When mixers fail, the contents of the tanks can become
10 stagnant, leading to the formation of ice on the surface. This ice buildup can obstruct the
11 movement of residuals and sludge, making it difficult to manage these materials
12 effectively. Without proper mixing, the sludge press operations can be severely impacted,
13 as the thickened sludge may not be adequately processed, leading to inefficiencies and
14 potential violations of environmental regulations. The GWA team informed Aqua that they
15 had been unable to pump and dewater sludge during the 2024/2025 winter due to these
16 failures and instead had to simply accumulate solids and waste on site.

17 Winter weather exacerbates these challenges, as freezing temperatures can cause
18 further mechanical failures and disrupt the treatment process. Ice formation in open top
19 tanks can damage equipment, such as liners, baffles, and aerators, leading to costly repairs
20 and downtime. Additionally, the freezing of residuals and sludge can hinder the WTP's
21 ability to maintain optimal treatment conditions, resulting in poor effluent quality and
22 increased operational costs. To address these issues, Aqua will implement robust

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1 preventative maintenance programs and invest in and repair winterization measures to
2 ensure that mixers and other critical equipment operate reliably throughout the year. By
3 maintaining continuous operation and optimizing for seasonal demand, Aqua will enhance
4 the resilience of its water treatment processes, ensuring consistent and high-quality service
5 to the community.

6

7 **[BEGIN CONFIDENTIAL]**

8 ■ [REDACTED]

■ ■ ■ [REDACTED]

■ [REDACTED]

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[REDACTED]
[REDACTED]

17 [END CONFIDENTIAL]

18
19 **Q. Does GWA utilize any compliance assurance software?**
20 **A.** No. To address this, Aqua will implement its current compliance assurance software. This
21 software system generates compliance-focused work orders for regulated water system
22 processes and functions. Employees will be assigned a combination of daily, weekly,

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1 monthly, quarterly, annual, and less frequent work orders to ensure that critical compliance
2 requirements are completed on time and in a manner that is well documented. The system
3 will generate monthly, quarterly, and annual regulatory reports for consistency of
4 calculations and to Aqua's standards. These systems will support the GWA staff in the
5 rapid adaptation to the operational excellence for which Aqua is known.

6
7 **IV. CONCLUSION**

8 **Q. Does this conclude your Direct Testimony?**

9 A. Yes, it does. However, I reserve the right to supplement my Direct Testimony as additional
10 issues and facts arise during the course of this proceeding.