PENNSYLVANIA AMERICAN WATER

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July 22, 2024

VIA ELECTRONIC FILING

Ms. Rosemary Chiavetta, Secretary
Commonwealth of Pennsylvania
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street
Harrisburg, PA 17120

In re: Joint Petition of Pennsylvania-American Water Company and the Pennsylvania Department of Environmental Protection Requesting an *Ex Parte* Emergency Order in Regard to Receivership of East Dunkard Water Authority

Docket No. P-2023-3043950

Dear Secretary Chiavetta

Pursuant to Appendix A of the Commission's Ratification Order entered November 20, 2024[1] and the Commonwealth Court Order dated February 8, 2024[2], please find attached the System Evaluation and Improvements Plan dated July 22, 2024 of Pennsylvania-American Water Company regarding East Dunkard Water Authority. This plan is being concurrently filed with the Commonwealth Court and submitted to the Pennsylvania Department of Environmental Protection.

Should you have any questions, please feel free to contact me.

Sincerely,

Elizabeth Rose Triscari

Elizabeth Rose Triscari

cc: All Parties on the Attached Certificate of Service *(via electronic mail)*

[1] *See,* paragraph 1(d) of Appendix A.
[2] *See,* paragraph 5(e) of the Commonwealth Court Order.

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Joint Petition of Pennsylvania-American Water Company and the Pennsylvania Department of Environmental Protection Requesting an *Ex Parte* Emergency Order in Regard to Receivership of East Dunkard Water Authority	:	Docket No. P-2023-3043950

CERTIFICATE OF SERVICE

I hereby certify that I have this 22nd day of July served a true copy of the foregoing filing upon the parties, listed below and in the manner below in accordance with the requirements of 52 Pa. Code §1.54 (relating to service by a party).

SENT VIA ELECTRONIC MAIL ON JULY 22 , 2024

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EAST DUNKARD WATER AUTHORITY
SYSTEM EVALUATION AND IMPROVEMENTS PLAN
JULY 22, 2024

1. BACKGROUND

On February 8, 2024, the Pennsylvania Commonwealth Court ("Court") issued an Order appointing Pennsylvania-American Water Company ("PAWC") as a Receiver for the East Dunkard Water Authority ("Authority") and the Authority's property, facilities and assets, including the East Dunkard Public Water System ("System").

Paragraph 5(e) of the Order requires PAWC to conduct an evaluation of the System; identify deficiencies in the System's physical conditions, facilities and operational procedures; identify and prepare a plan of capital and operational procedures; identify and prepare a plan of capital and operational improvements to: (i) improve System performance and compliance with applicable law, (ii) address or anticipate the obsolescence of portions of the System, (iii) reduce the cost of operating the System, (iv) provide cost savings or efficiency innovations to the System, or (v) comply with existing or anticipated changes to applicable laws and regulations; and report the results of such evaluation to the Court, the Pennsylvania Department of Environmental Protection ("Department"), the Pennsylvania Public Utility Commission ("Commission")and Authority ("the Improvements Plan").

Paragraph 5(f) of the Order further requires that the capital and operational improvements be designated in terms of their regulatory classification. As defined in the Order, "Department Mandated Improvements" are those reasonably required to bring the System into compliance and maintain compliance with requirements of the Pennsylvania Safe Drinking Water Act and regulations and other applicable environmental, health and safety laws, and "Commission Approved Projects" are those additional improvements identified in the Improvements Plan as reviewed and approved by the Commission.

This document provides the System Evaluation and Improvements Plan required by the Order. Section 2 references the previously-reported conditions found and actions taken as reported in the 60-Day Initial Status Report and the 2nd Quarter Status Report. Section 3 discusses the nomenclature used in this report for the timing and regulatory classification of the improvements, as well as the nature of the associated benefits. Section 4 describes the results of the System Evaluation and presents the future capital and operational improvements that will comprise the ongoing Improvements Plan.

2. 60-DAY INITIAL STATUS REPORT & 2ND QUARTER STATUS REPORT

Paragraph 5(t) of the Order required PAWC to submit an initial status report within sixty (60) days of assuming operations, and then quarterly thereafter. PAWC met this requirement by submitting the 60-day Initial Status Report on April 8, 2024 and the 2nd Quarter Status Report on July 3, 2024. These reports provided a description of the conditions of the System found upon assumption of Receivership operations by PAWC on February 9, 2024

and the corrective actions taken through the first 60 days of Receivership and the 2nd quarter of 2024, respectively. For brevity, those previously reported findings and accomplishments are not repeated in this report, but are incorporated herein by reference.

The next quarterly status report (3rd Quarter 2024) will provide an update on the System conditions and further actions taken in that timeframe, as well as a description of any progress on the future capital and operational improvements presented in this Improvements Plan.

3. NOMENCLATURE

This section describes the nomenclature used in this Improvements Plan regarding the timing and regulatory classification of improvements and the nature of associated benefits.

3.1 Timing of Improvements

PAWC's evaluation has identified improvements that range in importance from critical compliance/safety items that need to be done in the short-term to operational efficiency/design improvements that have a longer lead time. PAWC has made numerous corrective actions already under the Receivership[1], and will continue to do so for the critical short term items. The longer term improvements will take more time, likely beyond the term of the Receivership. These longer term improvements are expected to be undertaken by PAWC after closing of the July 23, 2023 Asset Purchase Agreement between PAWC and the Authority, should such closing occur. For the purposes of this report, the following designations are used for the timing of the improvements:

- "*RECEIVER*", indicating a short-term improvement to be initiated and/or completed during the term of the Receivership; and
- "*POST CLOSE*", indicating a long-term improvement to be initiated after closing of the acquisition transaction.

3.2 Regulatory Classification

For the purposes of this report, the following designations are used for the regulatory classification of the improvements:

- "DEP MANDATED", indicating a Department Mandated Improvement, as defined in Section 1 above; and
- "PUC APPROVED", indicating a Commission Approved Project, as defined in Section 1 above.

[1] See details in the 60-day Initial Status Report dated April 8, 2024.

3.3 Nature of Benefits

The Court Order specifies that the operational and capital improvements in the Improvements Plan be classified according to the nature of their benefits. For purposes of this report, the following designations are used for the nature of the benefits:

- "A", improve System performance and compliance with applicable law;
- "B", address or anticipate the obsolescence of portions of the System;
- "C", reduce the cost of operating the System;
- "D", provide cost savings or efficiency innovations to the System; or
- "E", comply with existing or anticipated changes to applicable laws and regulations.

4. SYSTEM EVALUATION & IMPROVEMENTS PLAN

This section describes the results of PAWC's System Evaluation and identifies deficiencies in the System's physical conditions, facilities and operational procedures that still need to be remedied. This section is organized in the following order of components of the System: (4.1) Physical Assets; (4.2) Operational Procedures; (4.3) Compliance Program; and (4.4) Safety Program.

4.1 Physical Assets

PAWC has observed and evaluated the physical assets of the System. The sections below describe the condition of each group of assets, the deficiencies found and the planned improvements.

4.1.1 Water Treatment Plant Facility

The water treatment plant is capable of producing drinking water that meets state and federal regulations, however there are numerous design deficiencies and opportunities for treatment and reliability improvements at the facility.

4.1.1.1 Raw water intake: The plant has a single intake structure with no redundancy and a manual bar screen that is susceptible to clogging with debris. When the intake screen is clogged, a manual bypass pumping operation is set up and divers are used to manually dislodge the debris. During high river flows, the use of divers is restricted due to safety concerns. To improve reliability and safety, a new intake with state-of-the-art dual passive screens with automatic back flushing capability is needed.

- ***Timing = POST CLOSE, Regulatory = DEP MANDATED, Benefits = A,B,D***

4.1.1.2 Pre-oxidation: There are no provisions for pre-oxidation of iron and manganese in the treatment process. This can lead to poor removal of these contaminants in the treatment plant and their subsequent precipitation in the distribution system, leading to water quality complaints. In the short term, PAWC is improving the chlorine feed system to be able to feed for pre-oxidation. However use of pre-chlorine can contribute to higher levels of disinfection by-products. A long-term solution utilizing a permanganate feed system is needed.

- ***Timing = POST CLOSE, Regulatory = DEP MANDATED, Benefits = A***

4.1.1.3 Liquid chemical feed units: The existing liquid chemical feed pumps for polyaluminum chloride (coagulant), sodium hydroxide (pH adjustment) and polyphosphate-orthophosphate blend (corrosion control) were single units with no redundancy and were in poor condition. These liquid chemical feed systems do not meet industry best practices nor American Water's design standards. To provide immediate relief, PAWC replaced the current pump units with new skid-mounted, dual diaphragm pump units for improved reliability and redundancy. In the long term, the liquid chemical storage and feed systems need to be completely replaced with state-of the-art facilities incorporating the latest Department design guidelines and American Water standards.

- ***Timing = POST CLOSE, Regulatory = DEP MANDATED, Benefits = A,B***

4.1.1.4 Chlorine gas feed system: The chlorine gas feed system is in poor condition, has no redundancy and lacks required safety features. PAWC obtained an emergency permit from the Department to make short-term improvements for safety and reliability, and is in the process of installing the new equipment.

- ***Timing = RECEIVER, Regulatory = DEP MANDATED, Benefits = A,B***

Chlorine gas is a toxic gas that presents a safety risk to employees and the local community in the event of a gas leak. A long term solution replacing the toxic gas with a safer liquid sodium hypochlorite feed system is needed.

- ***Timing = POST CLOSE, Regulatory = DEP MANDATED, Benefits = A,B***

4.1.1.5 Clarifier: The clarifier is operating adequately and producing good settled water quality. However, questions remain about the condition of the structure and equipment beneath the water surface, and effective management of the solids blanket in the unit is still a work in progress. When conditions allow, PAWC plans to do a controlled plant shutdown where the clarifier can be emptied, removed of all solids and thoroughly inspected. This process may identify future long-term improvements that would improve

the condition or operation of this unit.

- ***Timing = POST CLOSE, Regulatory = DEP MANDATED, Benefits = TBD[2]***

4.1.1.6 Settled water valve: This valve controls the flow between the clarifier and filter units. The valve does not fully close when necessary and needs to be replaced. This valve will be replaced with a new valve and electric actuator as part of the Phase II Plant Improvements Project ("Phase II project") under the Greene County Community Development Block Grant ("CDBG"). A permit application for the Phase II project was submitted to the Department on April 19, 2024, and the Department issued the Construction Permit (No. 3024505MA) on June 18, 2024.

- ***Timing = RECEIVER, Regulatory = DEP MANDATED, Benefits = A,B***

4.1.1.7 Filter valves, piping & instrumentation: The Phase II project includes several upgrades to remedy design deficiencies in the filter operations: (1) The 26 valves controlling the water flow through the filter units have pneumatic actuators. The actuators are aging and are prone to operational mishaps due to the pneumatic controllers. Each actuator will be replaced with electric powered actuators which are more reliable and require less maintenance, and each actuator will be connected to the Supervisory Control and Data Acquisition ("SCADA") System. (2) The four individual filter units currently have no means to measure the incoming flow, filtered flow, or filter-to-waste flow rates, all of which are valuable parameters to control filter operations. The project will include the installation of these 3 flow meter types on each of the filter units. (3) The filtration unit currently has no means to monitor the Combined Filter Effluent ("CFE") turbidity readings. This will be remedied by modifying the filtered water piping to provide a representative CFE sampling point, installing a tap and common service saddle and corporation, and installing a new Lovibond turbidimeter that will continuously monitor CFE turbidity. (4) The settled water turbidimeter and the four Individual Filter Effluent ("IFE") turbidimeters are based on outdated technology and are no longer supported by their manufacturer (HACH). The project will include replacement of each turbidimeter with a new, state-of-the-art, Department-approved unit manufactured by Lovibond. (5) The filter units currently have no means to monitor the loss of head through each unit, another very important parameter for filter operation control. The project will include the installation of a differential pressure gauge on each filter that is connected to SCADA to provide real-time loss of head data.

- ***Timing = RECEIVER, Regulatory = DEP MANDATED, Benefits = A,B***

[2] To be determined.

4.1.1.8 Plant finished water monitoring: There is currently no means to monitor the pH of the finished water leaving the plant, resulting in poor operational control of the sodium hydroxide feed system. Additionally, the finished water chlorine residual analyzer is an outdated instrument. The Phase II project will include the installation of two pH probes, one to continuously monitor the clearwell prior to chemical addition, and another on the high service piping to continuously monitor pH of water leaving the plant. A new HACH CL17sc chlorine residual analyzer will be installed to replace the outdated model.

- ***Timing = RECEIVER, Regulatory = DEP MANDATED, Benefits = A,B***

4.1.1.9 Plant clearwell: The Department has previously noted during inspections that the plant clearwell does not have a means to drain the contents. This can become important if the treatment process is impaired and off-specification water in the clearwell needs to be wasted quickly. This is a longer term project that will be considered once the Phase II project is completed.

- ***Timing = POST CLOSE, DEP MANDATED = None, Benefits = A***

4.1.1.10 Plant entry point: The Griffin water tank serves as the entry point location for the water system. There is a dedicated transmission main between the plant and Griffin tank, from which no customer service connections are tapped. Disinfection contact time ("CT") is achieved in the clearwell and transmission main prior to the tank. The entry point to the system is currently on the effluent pipe from the tank. A continuous chlorine residual analyzer is in place at this location to monitor chlorine concentration and associated CT value. There is currently no means to automatically shut down water flow into the system at the entry point if the chlorine concentration or CT value goes below regulatory standards. There is also no means to take the Griffin tank out of service for routine inspection and maintenance. Finally, the entry point water quality monitoring instrumentation is located in a below-grade vault that is not easily accessible.

Based on Department guidance, the entry point will need to be redesignated to the influent pipe of the tank, in order to provide a location for an automatic shutdown on loss of minimum chlorine residual or CT that would not result in a depressurization of the distribution system. The Phase II project will address these deficiencies as follows: (1) a new valve with an automated electric actuator in a new valve vault will be installed on the 10-inch transmission main entering the Griffin tank and connected into the SCADA system; (2) new manually operated valves and bypass piping will be installed

to allow the tank to be taken out of service easily; (3) a new above-ground building enclosure will be constructed to house the new water quality analyzer (Depolox 400M) and the relocated SCADA system panel from the existing vault; and (4) SCADA programming will be done to ensure that the automated valve shuts down flow into the Griffin tank if regulatory parameters are not met at the new entry point analyzer.

- ***Timing = RECEIVER, Regulatory = DEP MANDATED, Benefits = A,B,D***

4.1.1.11 Plant potable water supply: PAWC discovered that the plant's potable water supply was tapped off the plant's 10-inch transmission main rather than the 6-inch distribution main as originally believed. The tap location is before the point on the 10-inch main where regulatory disinfection and CT requirements are met for Giardia log inactivation, thereby making the plant water supply not potable. PAWC immediately advised all employees that the water was not for human consumption, posted all sinks at the plant as "non-potable water" and is providing bottled water to employees until a permanent solution can be made. Plans are being made to relocate the tap location to the 6-inch distribution main in front of the plant.

- ***Timing = RECEIVER, Regulatory = DEP MANDATED, Benefits = A***

4.1.1.12 Plant laboratory: The laboratory facility at the plant is in poor condition. A project is proceeding with funding under the CDBG to make several improvements to the laboratory, including new countertops and cabinets, new fume hood, and new analytical equipment.

- ***Timing = RECEIVER, Regulatory = DEP MANDATED, Benefits = A,D***

4.1.1.13 Plant SCADA system: The process control system architecture consists of a top-level High Tide SCADA system communicating with individual Process Logic Controllers ("PLC") located at the raw water pump station, the high service pump station, the filtration units, several online water quality analyzers, and the remote boosters stations and storage tanks. The system is operable, but the technology is dated, difficult to maintain and is not compatible with PAWC's statewide SCADA platform. In the long term, PAWC will plan to replace all of the PLCs and SCADA components with new technology that is compatible with PAWC's platform.

- ***Timing = POST CLOSE, Regulatory = DEP MANDATED, Benefits = A,B,D***

4.1.1.14 Plant wastewater facilities: The plant has a single membrane-lined wastewater lagoon that accepts all of the plant wastewater, including sludge blowdowns from the clarifier, filter backwash water, and filter-to-waste water. The lagoon was reconstructed in 2014 and is adequately serving its intended purpose of settling solids from the wastewater prior to discharge to

the Monongahela River under National Pollutant Discharge Elimination System Permit ("NPDES") No. PA0021971. However, there is currently no safe means to obtain samples of treated effluent required by the permit. A project is proceeding with funding under the CDBG to install a floating ramp/dock on the lagoon to allow safe access to the sampling point.

- ***Timing = RECEIVER, Regulatory = DEP MANDATED, Benefits = A,D***

Furthermore, the process for removal of sludge from the lagoon is time consuming and costly. Because there is only one lagoon, the solids must be removed while the lagoon remains in service. This requires removal of the sludge in liquid form which is an inefficient process. In the long term, plans should be made to evaluate the current facility and identify potential opportunities to improve the efficiency of the process through capital and/or operational modifications.

- ***Timing = POST CLOSE, Regulatory = DEP MANDATED, Benefits = A,C,D***

4.1.2 Water Distribution System

The distribution system consists of approximately 230 miles of water mains; associated valves and hydrants; customer services and meters; six booster pump stations; and ten finished water storage tanks.

4.1.2.1 Water mains: The water mains are primarily C900 polyvinyl chloride ("PVC") in composition, with some limited areas of asbestos-cement ("AC") pipe as well. The only known metallic pipe in the system is a 10-inch ductile iron section of the transmission main that runs from the plant to Griffin tank. Many of the leaks that PAWC has discovered have been on the customer service connections to the PVC main pipes. It is suspected that these connections will continue to be a source of leaks in the future. Work to understand the priority areas for improvement in the water main system is ongoing.

At this time, the highest priority main replacement that has been identified is the approximately 2,000 feet section of 10-inch ductile iron transmission main. The Authority believes that the lining of this pipe might have been damaged at the connection point back in 2012 during treatment plant upgrades. This coincides with the beginning of the discolored water customer complaints; therefore the Authority believes this pipe section could be contributing to the problem. Plans are underway to investigate options for replacing this section of the transmission main.

- ***Timing = POST CLOSE, Regulatory = DEP MANDATED, Benefits = A,B***

4.1.2.2 Distribution system valves, hydrants and blowoffs: The distribution system is made up of relatively small main pipes that serve a remote service area. In many areas of the system, the pipes terminate at dead-ends with little or no pipe looping in the system. As a result, it is very difficult to carry out a comprehensive flushing program to remove sediment from the system and maintain good water quality.

Updated system mapping in Geographic Information System ("GIS") format has been prepared by the Authority's consultant as a funded project under the CDBG. The second phase of this project will be the identification of additional valve, hydrant and blow-off locations needed in the distribution system to improve operational reliability and flushing ability, and the installation of these components. GIS mapping will be updated accordingly. The design work for this portion of the project is underway.

- ***Timing = RECEIVER, Regulatory = DEP MANDATED, Benefits = A,D***

4.1.2.3 Distribution system pump stations: The distribution system includes six (6) remote pump stations that serve higher gradients in the service area. Basic information on the pump stations is shown below in Table 1.

Table 1 – Pump station information

NAME	CAPACITY[a]	AGE	CONDITION	EMERGENCY POWER
Bald Hill	60	Older	Poor	No
Bealls Run	unknown[b]	Older	Poor	No
Davistown	100	Newer	Fair	Yes
Laurel Run	51	Older	Fair	No
Rocky Hollow	300	Newer	Good	Yes
Willow Tree[c]	200	Newer	Good	Yes

a) Gallons per minute.
b) Station is very small.
c) Station has a rechlorination facility that is not used.

PAWC has reviewed Department documents, including the Sanitary Survey report dated September 9, 2021, and conducted a field assessment of each station to identify operational and/or design deficiencies. Results for each station are presented below.

(1) Bald Hill Pump Station: This is an older station in poor condition. It is also situated very close to a public roadway with little protection from vehicle accidents (see photos).

Short-term needs include replacement of both pumps, and repair SCADA

communication issues. PAWC has secured an emergency permit from the Department to replace the pumps at the station. The new pumps were ordered and received from the manufacturer and plans are currently being made to retain a contractor to install them. SCADA work will proceed once the pumps are replaced.

- ***Timing = RECEIVER, Regulatory = DEP MANDATED, Benefits = A,B***

Long-term needs include installation of check valves; installation of security fencing and concrete-filled bollards for protection; installation of an additional fire hydrant to allow temporary pump-around in case of pump station outage; addition of a connection for a portable generator; and installation of new SCADA platform equipment . Eventually this station should be replaced in a new location with a facility that is designed to meet current Department regulations..

- ***Timing = POST CLOSE, Regulatory = DEP MANDATED, Benefits = A,B,C***

(2) Bealls Run Pump Station: This is also an older station in poor condition (see photos). Long-term needs include installation of a permanent top and security fencing; installation of an additional fire hydrant to allow temporary pump-around in case of pump station outage; addition of a connection for a portable generator; and installation of new SCADA platform equipment. These improvements will likely be done during the complete replacement of the current facility.

- ***Timing = POST CLOSE, Regulatory = DEP MANDATED, Benefits = A,B,C***

(3) Davistown Pump Station: This is a newer station in fair condition (see photos). Short-term needs include replacement of pumps and variable frequency drives, and installation of electric surge protection. These improvements are being planned for 2024 under the CDBG.

- ***Timing = RECEIVER, Regulatory = DEP MANDATED, Benefits = A,B***

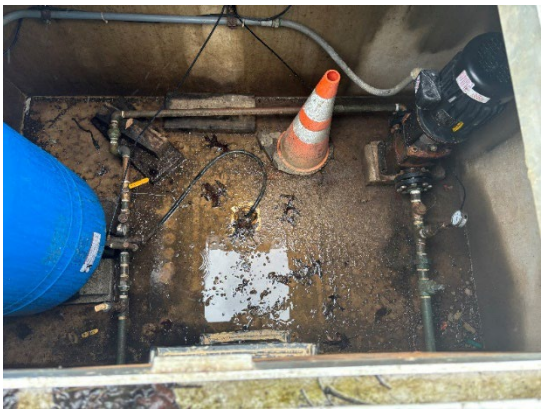
Long-term needs include installation of air release valves; replacement of heater and enclosure; extension of security fence around incoming electrical equipment; access road improvements; and installation of new SCADA platform equipment.

- ***Timing = POST CLOSE, Regulatory = DEP MANDATED, Benefits = A,B***

(4) Laurel Run Pump Station: This is an older station in fair condition (see photos). Long-term needs include replacement of electric service; installation of safety steps; replacement of interior piping; installation of security fencing; installation of an additional fire hydrant to allow temporary pump-around in case of pump station outage; addition of a connection for a portable generator; and installation of new SCADA

platform equipment.

- ***Timing = POST CLOSE, Regulatory = DEP MANDATED, Benefits = A,B,C***

(5) Rocky Hollow Pump Station: This is a newer station in relatively good condition (see photos). Short-term needs include replacement of variable frequency drives and installation of electric surge protection. These improvements are being planned for 2024 under the CDBG.

- ***Timing = RECEIVER, Regulatory = DEP MANDATED, Benefits = A,B***

Long-term needs include installation of air release valves, extension of security fence around incoming electrical equipment, and installation of new SCADA platform equipment.

- ***Timing = POST CLOSE, Regulatory = DEP MANDATED, Benefits = A***


(6) Willow Tree Pump Station: This is a newer station in relatively good condition (see photos). PAWC has already replaced four (4) failed variable frequency drives to restore station operation. Additional short-term needs include installation of electric surge protection and line reactors. These improvements are being planned for 2024 under the

CDBG.

- ***Timing = RECEIVER, Regulatory = DEP MANDATED, Benefits = A,B***

Long-term needs include installation of air release valves and installation of new SCADA platform equipment.

- ***Timing = POST CLOSE, Regulatory = DEP MANDATED, Benefits = A***

4.1.2.4 Distribution system storage tanks: The distribution system includes eleven (11) water storage tanks. Basic information on the tanks is shown below in Table 2.

Table 2 –Storage tank information

NAME	CAPACITY[(a)]	AGE	CONDITION
Abel	250,000	Older	Poor
Alicia	113,000	Newer	Good
Bald Hill	30,000	Newer	Good
Bobtown	300,000	Newer	Good
Clark (new)	109,000	Newer	Good
Clark (old)	110,000	Older	Poor
Donley	200,000	Older	Poor
Griffin (new)	360,000	Newer	Good
Griffin (old)	360,000	Older	Poor
Sugar Grove (new)	140,000	Newer	Good
Sugar Grove (old)	140,000	Older	Poor

a) Gallons.

The tanks were cleaned and inspected in September 2023 by Aqueous Infrastructure Management ("AIM") under a project funded by the CDBG. PAWC has reviewed the summary report prepared by AIM and the Department's Sanitary Survey report dated September 9, 2021. We also

conducted a field assessment of each tank to identify operational and/or design deficiencies. Results for each tank are presented below.

(1) Abel Tank: This is an older tank in poor condition (see photo). The tank is in need of rehabilitation including painting; installation of a new valve pit; gate/fence replacement and other security improvements; access road improvements; and installation of new SCADA platform equipment.

- ***Timing = POST CLOSE, Regulatory = DEP Mandated , Benefits = A,B***

(2) Alicia Tank: This is a newer tank in good condition (see photo). The tank is in need of security enhancements; minor leaks fixed; access road improvements; removal of the old valve pit (safety hazard); and installation of new SCADA platform equipment.

- ***Timing = POST CLOSE, Regulatory = DEP MANDATED, Benefits = A,D***

(3) Bald Hill Tank: This is a newer tank in good condition (see photo). The tank is in need of security enhancements; overflow pipe modifications; access road improvements; and installation of new SCADA platform equipment.

- ***Timing = POST CLOSE, Regulatory = DEP MANDATED, Benefits = A,D***

(4) Bobtown Tank: This is a newer tank in good condition (see photo). The tank is in need of security enhancements; electrical service replacement; overflow pipe modifications; site grading and access road improvements; and installation of new SCADA platform equipment.

- ***Timing = POST CLOSE, Regulatory = DEP MANDATED, Benefits = A,D***

(5) New Clark Tank: This is a newer tank in good condition (see photo). The tank is in need of security enhancements; overflow pipe modifications; access road improvements; and installation of new

SCADA platform equipment.

- ***Timing = POST CLOSE, Regulatory = DEP MANDATED, Benefits = A,D***

(6) Old Clark Tank: This is an older tank in poor condition (see photo). A hydraulic modeling analysis is required to determine if this older tank needs to remain in service along with the new one. If the tank is not needed, it should be decommissioned and removed. If it is needed, the tank should be rehabilitated including painting and related security and SCADA improvements.

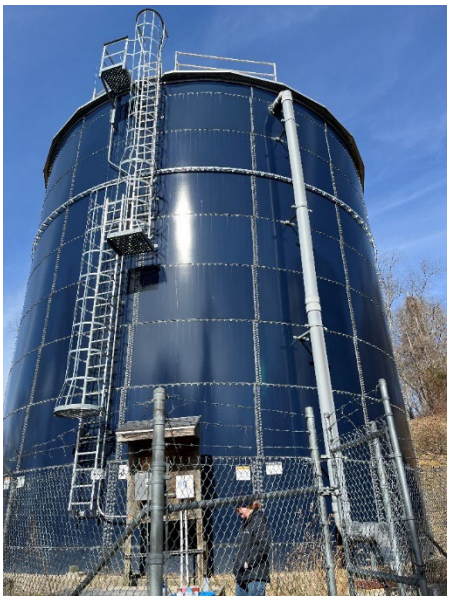
- ***Timing = POST CLOSE, Regulatory = TBD , Benefits = TBD***

(7) Donley Tank: This is an older tank in poor condition (see photo). The tank is in need of rehabilitation including painting; installation of a new

valve pit; gate and fence replacement and other security improvements; access road improvements; and installation of new SCADA platform equipment

- ***Timing = POST CLOSE, Regulatory = DEP Mandated , Benefits = A,B***

(8) New Griffin Tank: This is a newer tank in good condition (see photo). PAWC has already improved the access road to this tank. There are short-term improvements planned for the tank under the plant entry point project (see Section 4.1.1.10). No other improvements are needed.



(9) Old Griffin Tank: This is an older tank in poor condition (see photo) that is not currently in service. A hydraulic modeling analysis is required

to determine if there is a need to put this older tank back in service together with the new one. If the tank is not needed, it should be decommissioned and removed. If it is needed, the tank should be rehabilitated including painting.

- ***Timing = POST CLOSE, Regulatory = TBD , Benefits = TBD***

(10) New Sugar Grove Tank: This is a newer tank in good condition (see photo). The tank is in need of security enhancements; overflow pipe modifications; access road improvements; and installation of new SCADA platform equipment.

- ***Timing = POST CLOSE, Regulatory = DEP MANDATED, Benefits = A,D***

(11) Old Sugar Grove Tank: This is an older tank in poor condition (see photo). A hydraulic modeling analysis is required to determine if this older tank needs to remain in service along with the new one. If the tank is not needed, it should be decommissioned and removed. If it is needed, the tank should be rehabilitated including painting, along with related security and SCADA improvements.

- ***Timing = POST CLOSE, Regulatory = TBD , Benefits = TBD***

4.1.2.5 Customer meters: The Badger meters currently in use are approximately 11-12 years old. The Authority has experienced issues with dead batteries on these units and PAWC is also investigating potential issues with stuck/inoperable meters in the customer billing process. Pending the results of our investigation, the customer meters may need to be replaced to ensure accurate customer billing.

- ***Timing = POST CLOSE, Regulatory = TBD, Benefits = TBD***

4.2 Operational Procedures

PAWC has observed and evaluated the operational practices of the System. Many operational improvements have already been implemented, as documented in the 60-day Initial Status Report and 2nd Quarter Status Report. The sections below describe additional operational improvements that have been identified.

4.2.1 Chemical dosing

The most efficient means to feed chemicals at a water treatment plant is to have the chemical feed pumps automatically react to changes in plant flow via the SCADA system ("flow pacing"). The plant's current chemical feed system is not capable of flow pacing. Operators must manually adjust chemical feed pumps

in response to plant flow changes. The new liquid and gas chemical feed pumps being installed by PAWC (Sections 4.1.1.3 and 4.1.1.4) will be capable of flow pacing once installed. PAWC has performed programming to allow the new liquid chemical feed pumps to operate in flow-pace mode. PAWC will do the same programming with the new chlorine gas feed system once it is fully in place.

- ***Timing = RECEIVER, Regulatory = DEP MANDATED, Benefits = A,C,D***

4.2.2 Unattended Plant Operation

The Authority has been required to staff the treatment plant 24/7/365 since the Department issued their Administrative Order dated August 25, 2022. Prior to this, the Authority had routinely been running the plant unattended for one or more shifts per day. However, the Department found in their Administrative Order that the plant did not have the requisite alarms, controls and automatic shutdowns needed for unattended operation under the regulations. The requirement to staff the plant full time has put additional strain on the Authority's minimal resources.

Based on the work that has been done to date and the future work planned under the Phase II plant project, PAWC believes that the plant will eventually have all of the features needed to again consider unattended operation. Once all equipment is in place, PAWC plans to assess the plant for its ability to run unattended while meeting all regulatory requirements. Should the assessment prove successful, PAWC would then propose an unattended operations plan to the Department for approval.

- ***Timing = TBD, Regulatory = DEP MANDATED, Benefits = A,C,D***

4.2.3 Purchased water

Since early 2023, the Authority has been purchasing water at considerable expense from the Southwestern Pennsylvania Water Authority. The purchased water was required to serve a portion of the northern service area and was due to equipment failures at the Authority's Willow Tree pump station. PAWC has made improvements to the pump station to restore its operation, as documented in the 60-day Initial Status Report. A portion of the purchased water has already been curtailed and PAWC is planning to make operational changes to shut down the remainder in the near future.

- ***Timing = RECEIVER, Regulatory = None, Benefits = C,D***

4.2.4 Distribution system flushing

As discussed in Section 4.1.2.2, the Authority's distribution system has received customer complaints of poor water quality. During this time, the Authority did not maintain a regular system flushing program. A proactive, unidirectional

flushing program will be key to removing sediment from the distribution system piping and restoring reliably good water quality to customers. Once the capital improvements discussed under Section 4.1.2.2 are complete, PAWC will design a system-wide flushing program using hydraulic modeling and begin implementation.

- ***Timing = TBD, Regulatory = DEP MANDATED, Benefits = A***

4.2.5 Emergency generator reliability

As discussed in the 60-day Initial Status Report, PAWC began a regular preventative maintenance ("PM") program on the System's emergency generators. In addition to regular PM, PAWC plans to perform a series of initial load bank tests on each generator to test their ability to operate effectively under load.

- ***Timing = RECEIVER, Regulatory = DEP MANDATED, Benefits = A***

4.2.6 Distribution system pump stations

Identified operational improvements at the pump stations include cleaning each facility; clearing brush and vegetation along fence lines; maintaining pump spare parts; exercising gate valves and emergency generators regularly; and maintaining connection to the SCADA system.

- ***Timing = RECEIVER, Regulatory = DEP MANDATED, Benefits = A***

4.2.7 Distribution system storage tanks

Identified operational improvements at the storage tanks include clearing brush and vegetation along fence lines; installation of water sample taps at the tank's inlet and outlet; regular calibration of the tank level transmitters; and maintaining connection to the SCADA system.

- ***Timing = RECEIVER, Regulatory = DEP MANDATED, Benefits = A***

4.2.8 Operations & Maintenance Manual and Emergency Response Plan

PAWC will revise and update the Operations & Maintenance Manual and the Emergency Response Plan upon closing of the acquisition.

- ***Timing = POST CLOSE, Regulatory = DEP MANDATED, Benefits = A***

4.2.9 Non-revenue water ("NRW")

In order to provide a baseline of performance, PAWC will perform a Water Audit Analysis using the American Water Works Association Water Audit Software. If necessary, an NRW improvement program will be prepared following the baseline work.

- ***Timing = POST CLOSE, Regulatory = DEP MANDATED, Benefits = A,C,D***

4.3 Compliance Program

PAWC has observed and evaluated the compliance program of the System. Many compliance improvements have already been implemented, as documented in the 60-day Initial Status Report and 2nd Quarter Status Report. The sections below describe additional compliance program improvements that have been identified.

4.3.1 SCADA-related

Compliance calculations for CT are currently done manually by the operators. Following the entry point improvements discussed in Section 4.1.1.10, PAWC will endeavor to add SCADA programming that would calculate CT in real-time and tie it into the SCADA alarms and shutdowns.

- ***Timing = RECEIVER, Regulatory = DEP MANDATED, Benefits = A***

4.3.2 NPDES Permit renewal

As discussed in the 60-day Initial Status Report, the plant's NPDES discharge permit expires May 31, 2024 and the renewal permit application was not submitted to the Department 180 days prior to the expiration date, as required by Department regulations. PAWC prepared the permit renewal application and submitted it to the Department on April 14, 2024. The permit application is currently under Department review.

- ***Timing = RECEIVER, Regulatory = DEP MANDATED, Benefits = A***

4.3.3 Filter Bed Evaluation ("FBE") program

PAWC submitted the results of the 1st quarter and 2nd quarter 2024 FBE's to the Department. This quarterly program will continue.

- ***Timing = RECEIVER, Regulatory = DEP MANDATED, Benefits = A***

4.3.4 Comprehensive Monitoring Plan ("CMP")

PAWC is revising the CMP for the System and will submit it to the Department in the 3rd quarter of 2024.

- ***Timing = RECEIVER, Regulatory = DEP MANDATED, Benefits = A***

4.3.5 PFAS[3] Initial Sampling

PAWC collected the first set of PFAS samples in the 1st and 2nd quarters of 2024. This quarterly sampling/testing program will continue.

- ***Timing = RECEIVER, Regulatory = DEP MANDATED, Benefits = E***

[3] Perfluoroalkyl and polyfluoroalkyl substances.

4.3.6 Lead and Copper Rule Revisions ("LCRR")

PAWC is making plans to comply with the lead service line inventory requirement of the LCRR due by October 16, 2024.

- ***Timing = RECEIVER, Regulatory = DEP MANDATED, Benefits = E***

4.3.7 AWIA[4] Risk Assessment

Risk assessment under the AWIA was due by June 30, 2021. PAWC will conduct the risk assessment within 180 days of the closing of the acquisition.

- ***Timing = POST CLOSE, Regulatory = DEP MANDATED, Benefits = A***

4.4 Safety Program

PAWC has observed and evaluated the safety program of the System. Many safety improvements have already been implemented, as documented in the 60-day Initial Status Report and 2nd Quarter Status Report. The section below describes an additional safety program improvement that has been identified.

4.4.1 Electrical arc flash

As discussed in the 60-day Initial Status Report, PAWC has begun to implement an OSHA[5]-compliant electrical arc flash protection program. Remaining work under this program includes data collection, isolation distance calculations, and safety labeling at the Willow Tree pump station and the water treatment plant.

- ***Timing = RECEIVER, Regulatory = DEP MANDATED, Benefits = A***

[4] America's Water Infrastructure Act of 2018.
[5] Occupational Safety and Health Administration.