



Elizabeth Rose Triscari

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July 25, 2024

VIA ELECTRONIC FILING

Rosemary Chiavetta, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street
Harrisburg, PA 17105-3265

In re: Application of Pennsylvania-American Water Company under Section 1102(a) of the Pennsylvania Public Utility Code, 66 Pa. C.S. § 1102(a), for approval of (1) the transfer, by sale, of substantially all of the East Dunkard Water Authority's assets, properties and rights related to its water system to Pennsylvania-American Water Company, and (2) the right of Pennsylvania-American Water Company to begin to offer or furnish water service to the public in Dunkard, and portions of Monongahela, Greene, Cumberland, Perry, and Whiteley Townships, all in Greene County, Pennsylvania
Docket No. A-2024-3049759

In re: Filing by Pennsylvania-American Water Company under Section 507 of the Pennsylvania Public Utility Code, 66 Pa. C.S. § 507, of the Asset Purchase Agreement By and Among East Dunkard Water Authority, and Pennsylvania-American Water Company, as Amended – Docket No. U-2024

Dear Secretary Chiavetta:

In response to your letter dated July 12, 2024 attached for filing is Pennsylvania-American Water Company's responses to Data Request Set I, regarding the above referenced docket number.

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

Sincerely,

Elizabeth Rose Triscari

cc: All Parties on the Attached Certificate of Service (*via the manner specified*)
James Kennedy, Bureau of Technical Utility Services (*via electronic mail*)

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

In re: Application of Pennsylvania-American :
Water Company under Section 1102(a) of the :
Pennsylvania Public Utility Code, 66 Pa. C.S. :
§ 1102(a), for approval of (1) the transfer, by :
sale, of substantially all of the East Dunkard :
Water Authority's assets, properties and rights :
related to its water system to Pennsylvania- : Docket No. A-2024-3049759
American Water Company, and (2) the right of :
Pennsylvania-American Water Company to :
begin to offer or furnish water service to the :
public in Dunkard, and portions of :
Monongahela, Greene, Cumberland, Perry, and :
Whiteley Townships, all in Greene County, :
Pennsylvania. :

In re: Filing by Pennsylvania-American Water :
Company under Section 507 of the :
Pennsylvania Public Utility Code, 66 Pa. C.S. : Docket Nos. U-2024-_____, *et al.*
§ 507, of the Asset Purchase Agreement By :
and Among East Dunkard Water Authority, :
and Pennsylvania-American Water Company, :
as Amended :

CERTIFICATE OF SERVICE

I hereby certify that I am this day serving the above-referenced Responses upon the persons and in the manner indicated below, which service satisfies the requirements of 52 Pa. Code §1.54 (relating to service by a party).

Service in the manner listed below addressed as follows on July 25, 2024

Melanie J. El Atieh, Deputy Consumer Advocate
Christine Maloni Hoover, Esquire
Office of Consumer Advocate
555 Walnut Street
5th Floor, Forum Place
Harrisburg, PA 17101-1923
(*via electronic mail*)

Rebecca Lyttle, Assistant Small Business Advocate
Office of Small Business Advocate
555 Walnut Street
1st Floor, Forum Place
Harrisburg, PA 17101
(*via electronic mail*)

Allison Kaster, Director
Pennsylvania Public Utility Commission
Bureau of Investigation and Enforcement
400 North Street
PO Box 3265
Harrisburg, PA 17105
(via electronic mail)

Lane M. Turturice, Esquire
East Dunkard Solicitor
Turturice & Associates, LLC
70 East Wheeling Street
Washington, PA 15301
(via electronic mail)

Respectfully submitted,



Elizabeth Rose Triscari, Esquire (PA ID 306921)
Pennsylvania-American Water Company
852 Wesley Drive
Mechanicsburg, PA 17055
Phone: (717) 550-1574
Email: elizabeth.triscari@amwater.com

**Attorney for Pennsylvania-American Water
Company**

Application of Pennsylvania-American Water Company for approval of the right to: (1) acquire substantially all of the East Dunkard Water Authority's assets, properties and rights related to its water system to Pennsylvania-American Water Company, and (2) begin to offer, render, furnish or supply water service to the public in Dunkard, and portions of Monongahela, Greene, Cumberland, Perry, and Whiteley Townships, Greene County, Pennsylvania

Docket No. A-2024-3049759

PAWC's Responses to TUS Set I

A-1. Please explain how customers in the requested service territory receive wastewater service and identify the service provider.

Response: East Dunkard Water Authority customers would be expected to have either individual on-lot sewage treatment facilities or to be served by one of the following wastewater service providers that have been identified within one mile of the Authority's service territory:

1. Carmichaels Cumberland Joint Sewer Authority
2. Dunkard-Bobtown Municipal Authority
3. Greensboro Borough and Monongahela Township Joint Sewage Authority
4. Masontown Municipal Authority
5. Mt. Morris Water and Sewer Authority
6. Point Marion Borough

Responsible Witness: Daniel J. Hufton, P.E., Manager – Engineering – Business Development
Pennsylvania-American Water Company

Date: July 25, 2024

Application of Pennsylvania-American Water Company for approval of the right to: (1) acquire substantially all of the East Dunkard Water Authority's assets, properties and rights related to its water system to Pennsylvania-American Water Company, and (2) begin to offer, render, furnish or supply water service to the public in Dunkard, and portions of Monongahela, Greene, Cumberland, Perry, and Whiteley Townships, Greene County, Pennsylvania

Docket No. A-2024-3049759

PAWC's Responses to TUS Set I

A-2. Please quantify the number of customers, by class, currently served by East Dunkard Water Authority's (EDWA's) water system (EDWA System) to include the number of public and private fire hydrants and private fire service connections. Also, if there are any private fire service connections, please specify EDWA's existing rates and PAWC's proposed rates for those connections.

Response: From billing records as of June 2024, there are 79 commercial customers, 1492 residential customers, 92 public hydrants, 0 private hydrants, and 0 private fire service connections.

Responsible Witness: Daniel J. Hufton, P.E. – Manager, Engineering – Business Development
Pennsylvania-American Water Company

Date: July 25, 2024

Application of Pennsylvania-American Water Company for approval of the right to: (1) acquire substantially all of the East Dunkard Water Authority's assets, properties and rights related to its water system to Pennsylvania-American Water Company, and (2) begin to offer, render, furnish or supply water service to the public in Dunkard, and portions of Monongahela, Greene, Cumberland, Perry, and Whiteley Townships, Greene County, Pennsylvania

Docket No. A-2024-3049759

PAWC's Responses to TUS Set I

A-3. Please provide the estimated average monthly water usage for customers connected to the EDWA System, by customer class.

Response: The average monthly water usage for EDWA customers, based on the last 13 months (June 2023 – June 2024) of billing records, is as follows:

Average Residential = 2,757 gallons/month
Average Commercial = 8,931 gallons/month

Responsible Witness: Daniel J. Hufton, P.E. – Manager, Engineering – Business Development
Pennsylvania-American Water Company

Date: July 25, 2024

Application of Pennsylvania-American Water Company for approval of the right to: (1) acquire substantially all of the East Dunkard Water Authority's assets, properties and rights related to its water system to Pennsylvania-American Water Company, and (2) begin to offer, render, furnish or supply water service to the public in Dunkard, and portions of Monongahela, Greene, Cumberland, Perry, and Whiteley Townships, Greene County, Pennsylvania

Docket No. A-2024-3049759

PAWC's Responses to TUS Set I

A-4. PAWC filed an Amended Application (Amended Application) on July 2, 2024. The Amended Application's Amended Appendix R included letters sent by PAWC to the planning commissions of the municipalities and county included in the requested territory to confirm that the application is consistent with their respective comprehensive plans and zoning. PAWC did not provide responses from Cumberland, Dunkard, and Monongahela Townships or Greene County. Please confirm that the Application is consistent with the Cumberland, Dunkard, and Monongahela Townships and Greene County comprehensive plans and zoning.

Response: PAWC received responses for three of seven municipal and county requests. The three responses were provided in our Amended Application. PAWC performed online research to obtain comprehensive plans and zoning documents for Cumberland, Dunkard, and Monongahela Townships, and Greene County. A 2020 Greene County Comprehensive Plan and a Cumberland Township Zoning Ordinance were obtained. Based on our review of these documents, there is nothing in our Application that is inconsistent with these publicly available documents. PAWC will continue to seek to obtain responses from these townships and Greene County.

Responsible Witness: Michael Salvo, Director – Business Development
Pennsylvania-American Water Company

Date: July 25, 2024

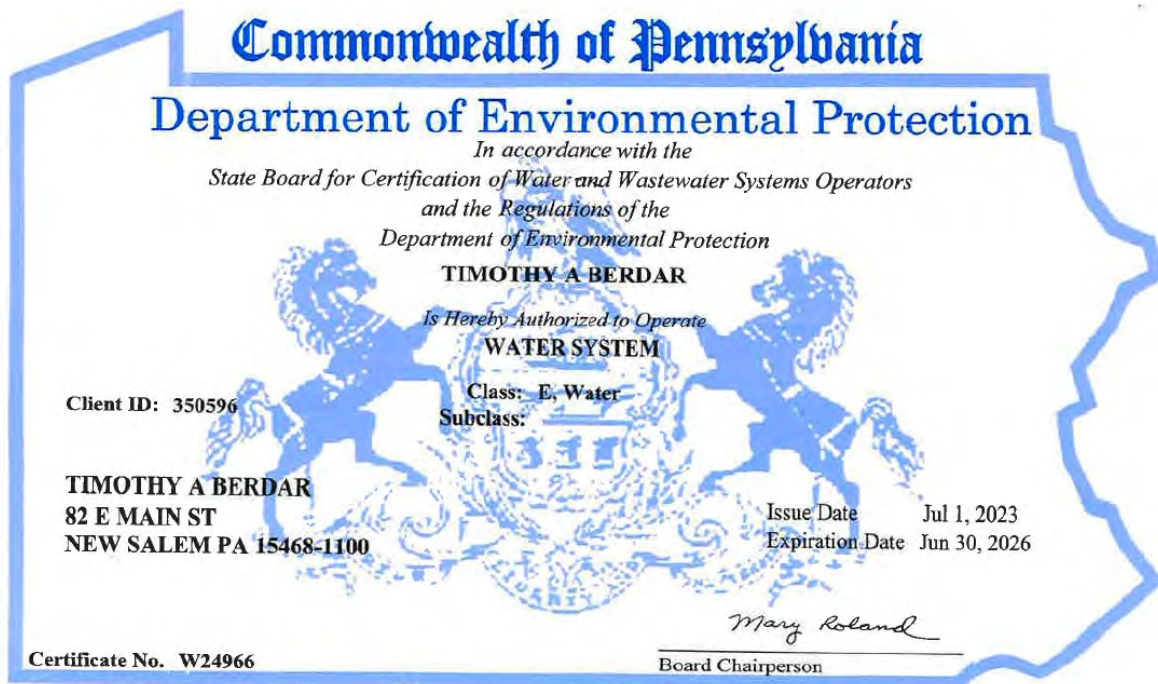
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PAWC's Responses to TUS Set I

A-5. Please identify the individual(s) PAWC intends to operate the EDWA System and provide a copy of the certified operator's certificate for the individual(s).

Response: The Operators in Responsible Charge (ORC's) for PAWC's operation of the EDWA System are Timothy A. Berdar, Jon C. Natale, and Timothy J. Patterson. Copies of the ORC's certificates are provided on the following pages.



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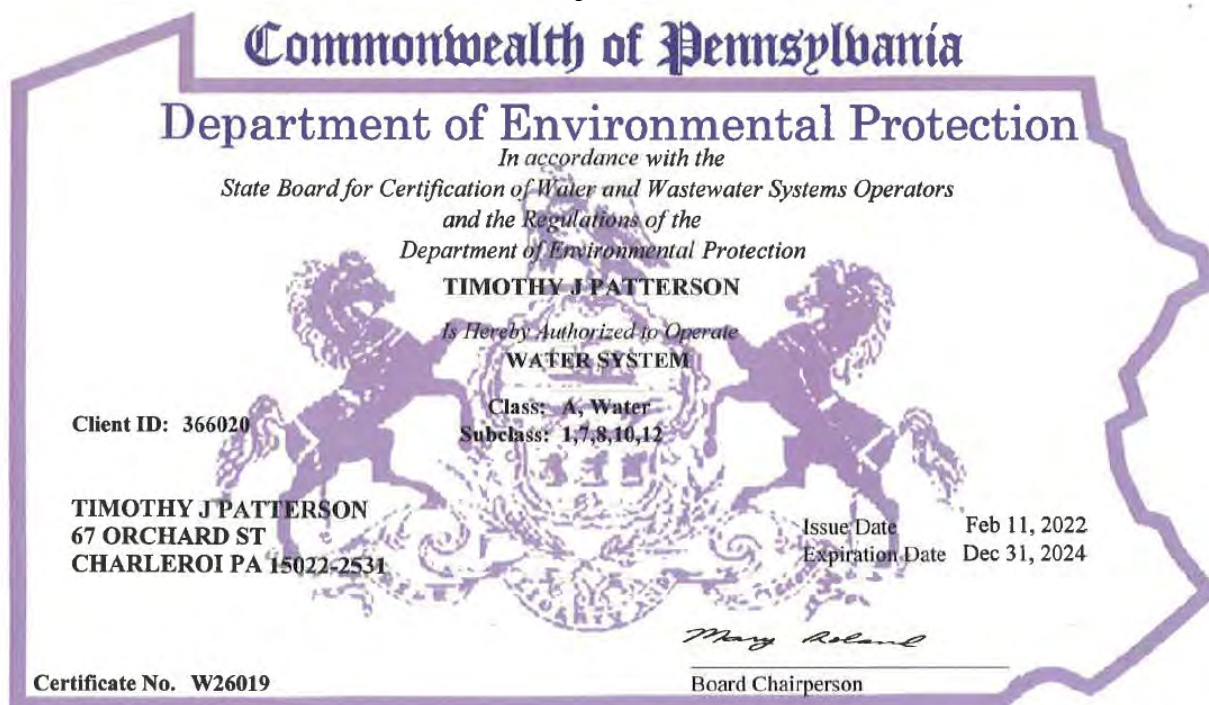
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Docket No. A-2024-3049759

PAWC's Responses to TUS Set I



Responsible Witness: Daniel J. Hufton, P.E. – Manager – Engineering – Business Development
Pennsylvania-American Water Company

Date: July 25, 2024

Application of Pennsylvania-American Water Company for approval of the right to: (1) acquire substantially all of the East Dunkard Water Authority's assets, properties and rights related to its water system to Pennsylvania-American Water Company, and (2) begin to offer, render, furnish or supply water service to the public in Dunkard, and portions of Monongahela, Greene, Cumberland, Perry, and Whiteley Townships, Greene County, Pennsylvania

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PAWC's Responses to TUS Set I

A-6. Please provide details of EDWA's source of supply capabilities including design maximum production capacity, permitted/contracted maximum production capacity, and peak and average daily production for the 2023 calendar year, including for sources that supply EDWA's water treatment plant and EDWA's Sugar Grove Interconnect.

Response: The design maximum production capacity of EDWA's water treatment plant is 1,152,000 gallons per day (gpd). The permitted maximum production capacity of EDWA's water treatment plant is 1,152,000 gpd. The capacity of the Sugar Grove Interconnect is 264,960 gpd. The 2023 calendar year peak daily system water usage was 746,910 gallons on January 3, 2023, and the 2023 calendar year average daily system water usage was 732,415 gallons.

Responsible Witness: Daniel J. Hufton – Manager, Engineering – Business Development
Pennsylvania-American Water Company

Date: July 25, 2024

Application of Pennsylvania-American Water Company for approval of the right to: (1) acquire substantially all of the East Dunkard Water Authority's assets, properties and rights related to its water system to Pennsylvania-American Water Company, and (2) begin to offer, render, furnish or supply water service to the public in Dunkard, and portions of Monongahela, Greene, Cumberland, Perry, and Whiteley Townships, Greene County, Pennsylvania

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PAWC's Responses to TUS Set I

A-7. Please provide a list of all EDWA's water system assets broken down by major plant categories detailing each item description along with the associated pipe diameter, material type, pipe length, and/or quantity (e.g. valves, hydrants, etc), as appropriate. In addition, please detail the major components of the EDWA water treatment plant (EDWA WTP), pump stations, etc.

Response: An itemized asset list can be found in **A-14_Attachment 2**. A descriptive list of the major assets of the Authority follows:

Water Treatment Plant

- River Intake
- Raw Water Pump Station
- Pre-treatment Chemical Feed Equipment
- Clarifier
- Multimedia Filters (4)
- Post-treatment Chemical Feed Equipment
- Clearwell
- High Service Pump Station
- Transmission Main to Griffin Tank
- Wastewater Lagoon
- Office Facilities

Distribution System

- 250 miles of distribution main (breakdown by size and type not available)
- 365 valves
- 92 public hydrants
- 6 booster pump stations¹
- 11 storage tanks²

Responsible Witness: **Daniel J. Hufton – Manager, Engineering – Business Development
Pennsylvania-American Water Company**

Date: **July 25, 2024**

¹ Bald Hill, Beals, Davistown, Laurel Run, Rocky Hollow, Willowtree.

² Abel, Alicia, Bald Hill, Bobtown, New Clark, Old Clark, Donley, New Griffin, Old Griffin, New Sugar Grove, Old Sugar Grove.

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PAWC's Responses to TUS Set I

A-8. Please provide a one, five, and 10-year estimate of operating revenue, operation and maintenance expenses, and annual depreciation and taxes for the EDWA System.

Response: Refer to the table below for the information requested.

Estimated Annual Revenues and Expenses After Acquisition

(Dollars in thousands)

	<u>Year 1</u>	<u>Year 5</u>	<u>Year 10</u>
Operating Revenues ¹	\$1,376		
Operating Expenses			
Operation and Maintenance	1,316	1,532	1,773
Depreciation and Amortization	115	397	573
General Taxes and Other	56	102	183
Total Operating Expenses	<u>\$1,487</u>	<u>\$2,031</u>	<u>\$2,529</u>

¹ The Company has not reflected projected revenues for years 5 and 10. Those future revenues will be dependent on factors unknown at this time, such as the Company's rate case filing schedule and what rates the Commission sets for the East Dunkard customers.

Responsible Witness: Stacey Gress – Director, Rates and Regulatory
Pennsylvania-American Water Company

Date: July 25, 2024

Application of Pennsylvania-American Water Company for approval of the right to: (1) acquire substantially all of the East Dunkard Water Authority's assets, properties and rights related to its water system to Pennsylvania-American Water Company, and (2) begin to offer, render, furnish or supply water service to the public in Dunkard, and portions of Monongahela, Greene, Cumberland, Perry, and Whiteley Townships, Greene County, Pennsylvania

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PAWC's Responses to TUS Set I

A-9. Please provide copies of EDWA's current water rates, rules, and regulations.

Response: EDWA's current rates were provided in **Amended Appendix A** to the Amended Application (see Third Amendment to Asset Purchase Agreement, dated June 13, 2024, revised Schedule 6 Seller's Rates). Current rules and regulations are attached as **TUS-A-9_Attachment**.

Responsible Witness: **Don Wieczenski, Director – Business Development
Pennsylvania-American Water Company**

Date: **July 25, 2024**

East Dunkard Water Authority

Rates, Rules, and Regulations Governing the Supply of Water

EAST DUNKARD WATER AUTHORITY

RATES, RULES, AND REGULATIONS GOVERNING THE SUPPLY OF WATER

I. RULES AND REGULATIONS

These Rules and Regulations are a part of the Contract with every person who takes water service, and every such person by taking water agrees to be bound thereby.

These Rules and Regulations are not intended to conflict with any local, state, or federal legislation, and are intended to be in compliance with the Pennsylvania Municipality Authorities Act of 1945, P.L. 382, as amended and any other applicable local, state, or federal legislations. Any conflict between such legislation and these Rules and Regulations shall be resolved in favor of such legislation. If any provision of this agreement is held to be invalid, illegal or unenforceable, all other provisions shall nevertheless continue in full force and effect.

II. ENFORCEMENT

These Rules and Regulations shall become effective on and after February 3, 2022, to all properties then and after connected to the water system. All prior Authority rules, regulations, and resolutions not consistent herewith are hereby repealed, provided, however, that all rights accrued and moneys due the Authority under any such rules, regulations, and resolutions are preserved to the Authority. The Authority reserves the right to amend these Rules and Regulations and Schedule of Charges in such manner and at such times, as in its opinion, may be advisable.

III. DEFINITIONS

A. Applicant: A person who applies for water service at a premises

B. Authority: East Dunkard Water Authority

C. Water Service Line: The Water Service pipe and appurtenances extending from the Authority's main including; the tee or tap in the main, the lateral pipe to a point at or near the property line, the curb stop or service valve, and the curb box or valve box

D. Borough: Any of the boroughs (Pennsylvania municipal corporations) in which the Authority provides water service

E. Commercial Water Hauler:

1. A person or entity delivering the Authority's water supply to retail customers
2. A person or entity delivering the Authority's water supply to the Oil and Gas Industry
3. A person or entity employed by any industry delivering water in bulk as an employee or contractor

F. Contractors: A builder or other person who uses water on a temporary basis for construction purposes

G. Connection: Any new tap-in to the Water System for a premises. This definition of a connection shall apply for any new pipes connected for a premises which is previously or currently connected to the system if they tap-in or connect a different point in the system.

H. Cross-Connection: Any connection, direct or indirect, that physically joins a customer's Water Service Line, or any piping extension thereof, to a non-potable source of water, or to a water system other than that of the Authority

I. Customer: Any person or entity who is the named applicant on an approved application, or who is the individual named on an account with the Authority who receives water service from the Authority

J. Customer's Service Line: That part of the water service pipe extending from the Authority's service line to the premises

K. Main Extension: The pipe of a public utility system, excluding service connections, located in a public highway, street, alley or private right-of-way which pipe is used in transporting water

L. Meter: A device for measuring the quantity of water used, as a basis for determining charges for water service to a customer

M. Owner: The person or entity designated in a deed as the owner of the property

N. Premises: The property, building, or other site or part thereof to which water service is furnished:

1. a building owned or leased by a person(s), and occupied as one residence or business;

2. a combination of buildings owned or leased by a person(s). served by one service line, and occupied by one family or business;

3. each side of a double house or each housing unit;

4. each apartment, office, or suite of offices located in a building having several such apartments, offices, or suits of offices and using in common one or more means of entrance; and

5. such other property as the Authority shall deem a "Premises" consistent with these rules and regulations which desires water service and as the Authority deems proper and advisable.

O. Standby Service: Water Service intended to supplement Water Service provided from a source of supply other than that of the Authority

P. Tenant: A person or entity who leases or rents premises from an owner

Q. Township: Any of the townships (Pennsylvania municipal corporation) in which the Authority provides water service

R. Water Service: Provision by the Authority of water as a commodity, of readiness to service water for any purposes and of any services related thereto

S. Water System: The Authority's water supply and distribution facilities

IV. APPLICATIONS

A. SERVICE CONNECTIONS

1. Any Owner or Applicant desiring the introduction of the Authority's Service Line from the Authority's main to his Premises must first make written application on the form furnished by the Authority, at least fourteen (14) days before Water Service is required. The application shall state the time when the Owner's service line is completed, ready for inspection, and ready for connection to the Authority's Service Line. All applications are taken subject to approval by the Authority.

2. The application must be signed by the Owner and the Applicant, or his duly authorized agent, which application shall, together with these Rules and Regulations, regulate and control Water Service to the Premises.

3. The application will not be approved until the Authority receives full payment of all applicable Water Service connection charges, tap fees, and other charges as from time to time duly adopted by the Authority and set forth on Schedule C attached hereto and made a part hereof.

4. A non-owner may not make application for a Water Service connection to a premises.

5. Applications requesting a new service connection to a water main, the construction of which was paid for by a previous applicant, other than the Authority, and the Extension Refund Agreement, shall pay to the Authority, in addition to the service connection and meter installation share, that amount required by the Extension Refund Agreement.

6. Applicants requesting Water Service which require a main extension will be required to pay for the main extension. Refer to Section IX.

7. Any person requesting a Water Service connection to a new home or building must certify that only lead-free materials were used in the plumbing work. If the certification is not provided Water Service will not be provided in the new home or building.

B. WATER SERVICE

1. Any person desiring water service shall submit a signed application for approval on the form furnished by the Authority at least fourteen (14) working days before service is required. All applications are taken subject to approval by the Authority.

2. When a Water Service application is made by someone other than the Owner, the Owner shall co-sign the application and shall guarantee payment for Water Service. Co-signing the application shall not permit, or grant any authority, for the owner to request or demand a watershut off, unless they Owner provides the consent of the applicant or provides satisfactory evidence of legal possession of the premises.

3. The absence of a Water Service application or the Owner's signature thereon shall not relieve the Owner of his responsibility for payment of all Water Service bills related to the Premises.

4. A new Water Service application shall be submitted whenever there is a change of Tenant or Owner. No individual shall have the right to Water Service without submission of an Application and the approval thereof. In any case where a premises is receiving water service without an approved applications, the Authority shall have the right upon three (3) days written notice, to discontinue water service until such new application has been made and approved.

5. All contracts for Water Service shall continue in force from month to month, but either party (the Applicant or Authority) may cancel the contract by giving ten (10) days written notice.

6. When Water Service is initiated or discontinued during a billing period, charges will be prorated according to the days of services rendered during the applicable billing period.

7. Unless prior arrangements are made by the Owner, a separate water service application shall be made for:

(a) each unit, apartment, home, condominium, office or other separate space, under one roof, whether owned or leased, and occupied as one residence, business or other use;

(b) each building, in a combination of buildings in one common enclosure, if owned or leased by (or capable of being owned by, or leased by) separate parties, families, entities or businesses;

(c) each side of a double housing having a solid vertical partition wall (duplex);

(d) such other cases as the Authority shall deem proper and advisable.

(e) Notwithstanding the foregoing, one tap fee will be charged for providing water service to multiple mobile home units located on one parcel of ground and further that in such circumstances, the owner of the ground will be responsible for non-payment of the entire water consumption through the single meter consistent with the terms of the Utility Service Tenants Rights Act of 1978.

8. The above stated rules regarding water service shall not apply to tenants within the meaning of the Utility Tenant's Rights Act and the Authority will be governed by the rules of the Act regarding application and termination of service.

9. Any service inactive for a period of seven (7) years will be required to pay a tap fee less the connection fee to reinstate water service. However, if a tap fee has been paid and the tap installed but never activated, no time restrictions apply.

C. DEPOSITS

1. The Authority may, at its option, require a deposit.

2. Any customer having a deposit shall pay bills for water service rendered in accordance with these Rules and Regulations. The deposit shall not be considered as payment for normal water service. The deposit, subject to the discretion of the Authority, may be applied towards delinquent bills for water service and any costs incurred in collecting delinquent bills (including attorney's fees).

V. CONDITIONS OF INSTALLATION AND USE

A. WRITTEN PERMIT FOR CUSTOMER TO SUPPLY PERSONS OR FAMILIES

1. No customer or any Premises receiving Water Service shall supply water to other persons (non-household members or people other than business employees or customers) or other premises except by written permission of the Authority. Customers who violate this rule will have water discontinuance procedures initiated against them. Water service that is turned off, will remain off, until the requirements of the Rules and Regulations are satisfied. Any violation of this provision will cause Water Service to such Customer or Premises to be terminated.

B. AUTHORITY'S SERVICE LINES

1. Upon approval of the water service and service connection applications, and payment of all applicable charges, the authority will install its service line between the main and the curb stop at the curb. It shall be the Applicant's responsibility to install a line from the curb to the premises subject to these rules and regulations and other regulations of the Authority which may be adopted from time to time.

2. A combined service line shall be installed for normal domestic Water Service and for Fire Protection Water Service, unless a separate service line is approved by the Authority.

3. The location and minimum size of the Water Service line will be determined by the Authority.

4. No Water Service line will be installed during a period when street openings are prohibited by state or municipal regulations, nor at any time when, in the judgment of the Authority, working conditions are unfavorable for installation either by reason of weather, temperature, condition of the soil, or otherwise. Installation of any services lines are subject to the approval and agreement with any state or local road authority, department, bureau or other governing body.

5. No other utility line shall be placed within four (4) feet of the Water Service Line, unless previous written approval is secured from the Authority.

6. When an Owner desires a change in location or size of an existing Water Service Line, he shall bear the entire cost of the change. The Owner shall submit a written request for any such change which may be granted or denied by the Authority depending on the scope of the project and the available resources of the Authority.

7. The Authority will be responsible for the maintenance and repair of its Water Service Line between the main and the curb stop. The Owner of a premises shall be responsible for any water lines on or within a premises.

8. Authority's Water Service lines will not be installed on private property under the following conditions:

a. The installation of said line is found to be reasonable and desirable by the Authority,

b. The Owner provides a duly recorded written permanent easement granting permission for the Authority to install and maintain the service line on said private property,

c. If the service line from the curb to the premises served passes through the property of persons other than the Owner of the premises to be supplied, the Owner shall assume liability for the service,

d. The Owner seeking connection through a third-party's property shall be responsible for all costs in obtaining a permanent easement through said property from the water service line to the Owner's property. These costs include any legal fees, filing fees, engineering fees, inspection fees, material costs and any other reasonable fees incurred in said expansion,

e. The proposed service line and easement moves in a perpendicular direction from the Authority main, AND

f. The proposed service line transverses no more than one adjacent property owner.

9. The Authority reserves the right to construct its service line after the Owner installs his service line to the Authority's satisfaction.

10. The Authority shall have the right to supply more than one customer from the same service pipe but in such case, a separate curb stop and box will be provided.

C. OWNER'S SERVICE LINES

1. The Owner's Service Line, beyond the Authority's Water Service line, shall be installed and maintained by the Owner at his expense. The Owner's Service Line from the curb stop to the meter shall be not less in size and quality than the Water Service line installed by the Authority.

2. The Owner's Service Line for all new services connections, where physically possible will be required to install an approved meter pit within three hundred feet (300) of the curb stop, or at a point approved by the Authority. The Owner may at his option:

A. Purchase a pre-fabricated coiled meter pit supplied by the Authority at prices based on the Authority's incurred cost. This pit includes the meter setter, shut off valve, regulator, and backflow preventer.

B. Construct a meter pit to current specifications, being 3' x 3' wolmanized lumber (Not Ply-wood) or masonry block structure with all the necessary fixtures at current acceptable specifications. The Authority shall have the right to inspect and shall approve the installation of any meter pit.

3. The Owner 's Service Line shall be laid at least feet (3') below finished grade.

4. The service line trench shall not be backfilled until the Authority's Water Service Line is installed and the Owner's Service Line is inspected, tested and approved by the Authority. If, in the opinion of the Authority, any defects exist in the Owner's Service Line then Water Service will not be furnished until such defects are remedied. All plumbing connections shall be able to withstand a pressure of at least 200 pounds per square inch.

5. A separate meter setter will be installed by the Owner immediately inside the basement wall or at such other location, as maybe approved by the Authority. The Authority shall have the discretion to set and determine any specifications for water meters as they deem necessary and appropriate.

6. The Owner shall also furnish and install a backflow preventor immediately after the meter. The backflow preventor and its installation may be subject to inspection, testing and approval by the Authority

7. If the Water Service Line pressure is deemed excessive by either the Authority, Applicant, or Owner, it shall be the Owner 's responsibility to install and maintain a pressure regulator at his/her expense. The pressure regulator and its installation may be subject to inspection, testing and approval by the Authority

8. If Water Service Line pressure is low the Authority shall be under no obligation to increase such pressure by any means, including pumping or other means.

9. The Owner shall keep its Water Service Line in good condition under penalty of service discontinuance. Water service may be discontinued if the property owner has not caused repairs to be made to its Water Service Line within ten (10) days after receipt of written notice from the Authority, or at any time if water escaping there from is causing damage to the property of others; or if water escaping there from is causing loss of water and/or revenue to the Authority. If the service line has been repaired previously and requires repairs again the Authority at its discretion may require the **Owner** to replace their service line. Owners shall be responsible for any fees incurred, or water rate charges, for water loss as a result of a leak in Owner's water service line or interior lines.

10. The Owner shall pay all costs for relocating or changing his Water Service Line.

11. Installation of all new or replaced Owner Water Service Lines for existing Owners shall require Authority inspection and approval. The following rules and standards shall apply to all such installation/replacement projects:

I. If the distance from the subject dwelling (at the point of connection) to the curb stop is no longer than three hundred feet (300'), the Owner will have the option to have the water meter, backflow preventer, regulator, and shut off valve, installed inside the dwelling, as long as the fixtures meet current specifications. Additionally, the following standards shall apply:

- A. The service line is 3 /4" K- Copper,
- B. There are no more than two (2) compression unions, being either Ford C-44-33-Q, Mueller H-15403, or McDonald 4758-Q, are used and installed to the Authority, and
- C. All work is subject to the Authority inspection and approval for reasonable standards of workmanship.

II. If the distance from the subject dwelling (at the point of connection) to the curb stop is greater than three hundred feet (300'), the Owner will be required to install a meter pit. The meter pit must be installed to the Authority standards and subject to the Authority inspection and approval. The Owner may at its option:

- A. Purchase a pre-fabricated coiled meter pit supplied by the Authority at prices based on the Authority's incurred cost. This pit includes the meter setter, shut off valve, regulator, and backflow preventer.
- B. Construct a new or bring an existing meter pit to current specifications, being 3' x 3' wolmanized lumber (Not Ply-wood) or masonry block structure with all the necessary fixtures at current acceptable specifications.

C. The Authority will not be responsible for the installation or construction of the meter pit. The Authority shall have the right to inspect and shall approve the installation of any meter pit.

12. If the Authority is required to renew its Water Service Line, and the Owner's Water Service Line does not meet the Authority specifications for the renewed Water Service Line, the Authority may issue notice to the Owner to renew his Water Service Line to the specifications of the Authority's renewed Water Service Line at the Owner's expense, with Owner's obligation to renew to coincide with the Authority's renewal.

13. Prior to laying new cement sidewalks or walkways, making changes in grade or other changes in sidewalk construction, the Owner shall notify the Authority, in order that the Authority may relocate the curb box at the proper grade. If such notice is not given and the box or boxes are covered or cemented over, thereby necessitating additional expense to the Authority for finding and relocating the same, the Owner shall be billed for such additional expense and the Authority will not be responsible for damages to the sidewalk. Owner shall be responsible for all costs incurred by the Authority in finding and relocating any box or boxes within, or under the replaced sidewalk or walkway.

14. In those instances where Water Service is interrupted because of freezing, the Authority will, at its own expense, thaw out the Water Service connection to the curb stop. The thawing out of the service pipe from the curb stop to the Premises shall be done by the Owner at his own expense. To avoid a recurrence of freezing, the Authority will make an examination of the Owner's service pipe and, if the same is not at a depth of three feet (3') as required, the Authority shall have the right to require it to be relocated before Water Service is resumed. Any costs in relocating a customer's service pipe, within their property, shall be the responsibility of the Owner.

D. OPENING AND CLOSING VALVES OR HYDRANTS

1. No, Owner, Customer or Person shall operate any curb stop, valve, or hydrant located in any Water Service Line or main unless authorized by the Authority to operate the same.

E. TWO OR MORE CUSTOMERS ON SAME SERVICE

1. Each Customer will be supplied through a separate metered Water Service connection unless the Authority grants an exception. If an exception is granted Service must be in the name of the Owner.

2. The Owner shall not furnish water received from Authority Water Service to other persons or Premises without prior written approval of the Authority.

3. Where two (2) or more Customers are supplied from the same Water Service Line a separate valve and valve box shall be provided for each Customer.

4. When two or more Customers are supplied from the same Water Service Line, controlled by a single shutoff valve, any violation of the Rules and Regulations of any Customer shall be deemed a violation by all Customers, and the Authority may take action against the entire group of Customers as if they were a single Customer. If the violation is not immediately cured, the Authority may, upon ten (10) days written notice to all Customers on said line, discontinue Water Service. Water Service will not be reinstated until separate service lines have been installed to each Customer in accordance with Authority's Rules and Regulations.

5. The above stated rule regarding two (2) or more customers supplied from the same Water Service line shall not apply to tenants within the meaning of the Utility Service Tenant's Rights Act and the Authority will be governed by the rules of such Act with regard to application and termination of Water Service.

F. TEMPORARY USES

1. Water Service may be provided on a temporary basis for special conditions, which do not fall under the classification of permanent Water Service. Each case shall be reviewed on an individual basis and Water Service shall be at the discretion of the Authority.

2. Applicants for temporary use of Water Service shall submit a written application to the Authority for approval. A deposit if required by the Authority shall accompany the application.

3. All costs for installing and dismantling Authority Water Service connections shall be paid for by the applicant.

4. Temporary Water Service may be metered, at the option of the Authority. The Authority will install and remove the meter, and all costs shall be paid by the applicant.

5. If water is used where a meter is not installed, the Authority shall establish the charge for Water Service, from the date of initial use to the date of meter installation or termination of use.

6. In the event of a temporary water line for extractive mineral purposes or for a temporary construction project, the customer's temporary service line may be laid across or under private property provided the customer provides a written easement agreement, subject to approval of the Authority. No temporary service may have a term in excess of twelve (12) months, but may be renewed for six (6) months periods, at the discretion of the Authority. The owner of the temporary service line shall be responsible for all costs of installing and removing of said line(s), as well as any and all damages incurred by any landowner or incurred by the Authority.

G. NON-PERMISSIBLE CONNECTIONS

1. The following connections are prohibited:

- (a) Any device which, in the opinion of the Authority, may cause water pressure surges or which may compromise the water system,
- (b) A connection to a booster pump, boiler plant, or boiler pump without a back flow prevention device approved by the Authority

H. BACKFLOW PREVENTION DEVICE

1. The cost of furnishing and installing all backflow prevention devices shall be borne by the Owner or Customer, who shall also retain ownership and be responsible for testing and maintaining the backflow preventor device. The Authority reserves the right to require that backflow prevention devices be tested at least once every twelve months and that a certified test report be furnished to the Authority with regard to such test indicating that the backflow prevention device is functioning properly

I. WATER HAULERS / OIL AND GAS CUSTOMERS

1. Any Customer desiring Water Service as a water hauler or bulk loadout customer, shall submit a written application to the Authority.

2. The Customer shall provide a location for loading water, which location shall be approved by the Authority.

3. The Customer shall pay all costs of installing the Water Service connection, meter, meter pit, meter vault, permits, valves, riser pipe, and facilities to control spillage and surge conditions.

4. The materials and workmanship are to be in accordance with the current specification of the Authority.

VI. METERS

A. GENERAL

1. All water used by Customers of the Authority, with the exception of public or private protection service, shall be metered.

B. SIZE, INSTALLATION AND OWNERSHIP

1. The Meter size will be based on Water Service requirements indicated by the applicant. The Authority will furnish all meters with a touchpad and MXU at the expense of the Owner as hereinafter described. Installation of Meters will be performed subject to the provisions of these Rules and Regulations by the Authority. All Meters and connections thereto shall become Authority property and shall be maintained by the

Authority at its expense. The Authority shall have the right to change, from time-to-time, the requirements of this section and the requirements for any such meters.

2. Owner and/or Customer shall provide to the Authority access to the Meter at all reasonable times for reading, inspection, replacing, testing and repairs.

3. A Owner or Customer shall not remove or disconnect a Meter. Fixtures shall not be attached to the service pipe between the Meter and the street main.

4. If Water Service to a Owner or Customer has been disconnected for any reason, an approved backflow prevention device must be installed at the Owner's expense before re- issuance of Water Service.

C. PAYMENT FOR METERS

1. The Owner shall pay all costs for furnishing and installing the Water Service Meter according to the applicable schedule of charges.

D. LOCATION OF METERS

1. The Authority will determine the location of all Meters.

2. When a Meter is installed within a building, the Customer shall provide, at his expense, an approved installation space and approved piping connections complete with stops or valves with drains.

3. When a Meter is installed outside a building, it shall be placed in an approved meter box, a pit complete with approved stops or valves, backflows, provided at the Owner's expense.

4. Each Customer unit, whether single house, double house, or row house, and whether owner or tenant occupied, shall have a separate meter, except as otherwise permitted by the Authority.

5. Multi-unit buildings serviced through a single Water Service Line, such as apartment buildings and office buildings, may have a single Meter if approved by the Authority but will be charged a base fee per unit if that amount is greater than the base fee of the meter.

E. PROTECTION OF METERS

1. The Customer and Owner shall protect the Meter, Touchpad and MXU against damage due to freezing, hot water, negligence, fire, vandalism, and other causes. The Authority will repair any loss or damage to the meter at the Customer's expense. Service will be discontinued until such repair charges are paid.

2. The Customer and/or Owner shall not remove or tamper with a Meter installation nor permit any other person except an authorized employee of the Authority to remove a Meter. When a Meter seal has been tampered with or broken, or the meter has been removed by an unauthorized person, the Authority may remove, test, reset, reseal and install the Meter at the expense of the Owner and at its discretion, may terminate Water Service to the customer until a tampering fee has been paid.

F. METER TESTS

1. The Authority may test or replace a service Meter at any time it deems necessary, or upon notification by the customer as herein after described.

2. After receipt of a written request to test or replace a Meter and the payment of a deposit, the Authority will test the accuracy of its Meter. If the Meter accuracy is within the American Water Works Association Standards of $\pm 2\%$, the Meter is considered accurate and the deposit will be retained. If the Meter accuracy is not within $\pm 2\%$, the meter will be repaired or replaced at the Authority's expense, and the deposit will be returned.

3. Required Meter test deposits shall be in an amount as from time to time set forth on the Authority Rate Schedule.

4. If a Meter is found to be inaccurate, an adjustment will be made only for the current billing period, based on test results or on the recorded consumption for the same billing period during the prior year, except however, if the Authority determines the beginning date of inaccuracy, the adjustment will be made from that date.

G. LEAKS AND DEFECTIVE PLUMBING

1. All metered consumption will be billed according to the Authority Rate Schedule as may be established by the Authority from time to time and no adjustment will be made for excessive consumption due to leakage of water.

VII. FIRE SERVICE AND OTHER SPECIAL USES

A. PUBLIC HYDRANT INSTALLATION

1. When a municipality desires the installation of a fire hydrant on the Water System, the municipality shall make application to the Authority for such installation. If the Authority determines the Water System is capable of providing fire protection, the Authority shall install the fire hydrant. The furnishing and installation of the fire hydrant will be made at the cost of the municipality.

2. Public fire protection service shall be paid by the municipality requesting the public fire hydrant at the rate stipulated in the Authority Schedule of Water Rates.

3. Whenever a municipality desires to change the location of a fire hydrant, it shall make application for the change, and the change will be made by the Authority. All costs incurred by the Authority for the relocation of a fire hydrant shall be reimbursed by the municipality, including the cost for any permits or the cost of replacements of street or sidewalk paving.

4. Fire hydrants shall not be used without the Authority's permission for any purpose, other than the extinguishing of fires by persons authorized by the laws of the Commonwealth of Pennsylvania for such purpose.

5. The Authority does not assume any liability as insurer of property or person. Any customer receiving fire service will only be entitled (in the event of fire) to the service, pressure, capacity, and facilities available at such time to the Authority. The Authority shall not be liable for any damage or injury to any person or property by reason of any fire, flooding, water supply failure, pressure failure, excess pressure, or lack of capacity or any other cause.

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B. PRIVATE FIRE SERVICE

1. A person, business, or other entity desiring private fire service shall submit an application to the Authority and if such service is granted by the Authority, shall pay all necessary charges before such service is rendered. The granting of private fire service shall be at the complete discretion of the Authority

2. No cross connection shall be made between a fire service line and a regular Water Service line, without the proper backflow appurtenances required by the Authority.

3. By providing fire service, the Authority does not assume liability as an insurer of property or person. Any Customer receiving fire service is only entitled to the service, pressure, capacity, and facilities available at the time of service. The Authority is not liable for any damage or injury to any person or property by reason of any fire, flooding,

water supply failure, pressure failure, excess pressure, lack of capacity, or any other cause.

4. Private fire protection service charges shall be determined according to the Authority Rate Schedule as may be established by the Authority from time to time. These charges are compensation for "Standing Ready to Serve".

5. When an Owner requests the installation of a fire hydrant on the Water System, the Owner shall make application to the Authority for such installation. If the Authority determines the Water System is capable of providing fire protection, the Authority shall install the fire hydrant. The furnishing and installation of the fire hydrant will be made at the cost of the municipality.

6. No annual charge will be made for fire hydrants installed on the Customer's side of the meter, in cases where the meter has been sized to measure the fire flow and the customer is paying that metered rate.

C. USE OF FIRE SERVICE FACILITIES

1. Fire hydrants or private fire service lines shall not be used for any purpose other than extinguishing fires and shall not be used by anyone other than persons authorized by the Commonwealth of Pennsylvania to use them to extinguish fires.

2. Any municipality, fire company, or Customer desiring to test hydrants or fire service lines shall notify the Authority at least ten (10) working days in advance of the scheduled test. The conduct of such test shall be subject to Authority approval and shall be at the cost and expense of the party requesting such test.

D. BOILERS

1. Customers who use the Authority water supply for steam boilers or similar facilities do so at their own risk. The Authority, upon request, will furnish water system pressure data for Customer convenience in setting relief valves.

VIII. DISCONTINUANCE OF SERVICE

A. NOTICE AND CHARGES

1. The Authority reserves the right to shut off water for nonpayment of delinquent water bills, and for any of the other reasons herein set forth. The Authority will give the Customer advance written notice of discontinuance, and will follow those procedures as set forth in the Pennsylvania Municipal Authorities Act and other

applicable State and Federal Status. Discontinued service will not be restored until delinquent water bills and a service restoration fee as set forth in the Authority rate schedule as may be established by the Authority from time to time are paid to the Authority.

2. There will be no charge for temporary shut off and turn on of water service if requested and performed during the Authority's normal weekday business hours, except when service discontinuance is involved.

3. There will be a charge as set forth in Schedule B, for shut off and turn on water service if the service is performed at the customer's request outside of the Authority's normal weekday business hours, including holidays. In the event that water is shut off as a result of a Tenant's nonpayment of fees, the Owner shall be responsible for satisfaction of any delinquent fees prior to restoration of service even if a new tenant is the Applicant.

4. The Authority reserves the right to reduce or shut off water service without notice during emergencies, and the Authority shall not be liable for any damages or inconveniences suffered because of such reduction or shut off.

B. REASON FOR DISCONTINUANCE

1. Service may be discontinued for any of the following reasons:

(a) Violation of any of the Authority Rules and Regulations.

(b) Misrepresentation in application as to property or fixtures to be supplied, the use of the water supply, or the Customer/Owner of record.

(c) Use of water for any property or purpose not described in the application.

(d) Tampering with any service pipe, meter, curb stop or seal, or any appliance of the Authority.

(e) Failure to maintain, in good order, connections, service lines, backflow preventors, meter housing or other fixtures for which the Customer is responsible.

(f) Waste of water through improper or imperfect pipes, fixtures, or other facilities.

(g) Vacancy of the premises.

(h) Failure to make payments of any Water System charges against the Premises.

(i) Refusal of access to the premises to inspect, read, replace, maintain or remove meters as directed by the Authority.

(j) Refusal to conserve water during period of drought or other advertised restricted supply period.

(k) Failure to pay Authority water bills or charges incurred at Premises other than the one to which Water Service is being supplied.

(l) Existence of any cross connection at a Premises.

(m) Placement of obstruction in, around, or over curb box.

C. SUPPLY OF WATER

1. The Authority shall not be liable for any water supply excess, deficiency or its consequences.

2. The Authority reserves the right to restrict water service in case of scarcity or whenever the public welfare may require restriction.

3. The Authority reserves the right to refuse water service to any individual, applicant, owner or customer, who has an excessively delinquent bill, who has acted to defraud the authority, who has attempted to tamper with the water system or supply, and/or who has otherwise compromised the safety and integrity of the water system.

D. VACATING THE PREMISES

1. When the Premises are vacated, the Owner or the Customer as occupant of the leased Premises, as the case may be, shall give to the Authority an affidavit stating that the Premises are vacant and that there are no tenants at the premises before a request to turn off water service will be honored. Alternatively, an owner may provide a final order of possession from either the Court of Common Pleas or the appropriate Magisterial District Judge. The Owner or the Customer occupying the leased premises, as the case may be, shall pay for all water used until the Water Service is turned off.

2. A new application shall be submitted each time there is a vacancy and/or change in Ownership or Customer identified at a premises, and the Authority shall have the right to discontinue Water Service until a new application is made and approved by the Authority.

IX. WATER MAIN EXTENSION

A. APPLICATION FOR EXTENSION

1. A written application on the form furnished by the Authority, unless otherwise indicated, must be submitted to the Authority for the purpose of requesting approval of a Water Line extension and Water Service there from, said application to be signed by the Owner, to be subject to the terms and conditions as are hereinafter set forth and included herein and to the execution of an agreement, which application, together with the Rules and Regulations of the Authority, shall regulate and control the installation of Water Line extensions and the furnishing of Water Service there from.

2. The application shall be accompanied by accurate plans showing the proposed location of the Water Line extension, the layout of the streets and roads, the layout of existing and proposed plans of lots, and other pertinent data with such plans to be in sufficient detail to permit the preparation by the Authority of detailed plans of the Water Line extension. The Water Line extension is to extend along the property to the property line at the far end of the property to receive Water Service, unless the Authority deems otherwise.

B. RESPONSIBILITY FOR COST

1. The entire cost of the Main Extensions, including the cost of the fire hydrants and other appurtenances and facilities, shall be borne wholly or in part by the Owner. The Authority may, at its discretion, elect to participate in the cost of a Main Extension if the Authority Engineer provides a written statement that the Main Extension is a public benefit as defined herein and as defined under the laws of the Commonwealth of Pennsylvania. Such written statement shall be on file before the Authority enters into such agreement.

The criteria for determining public benefit may include any of the following:

(a) hydraulic enhancement of the water system, such as, but not limited to, improvement of the flow capacity or system pressure;

(b) elimination of an Authority water system maintenance problem;

(c) improvement of water system reliability, such as, but not limited to, looping or interconnection of existing lines and elimination of dead end lines;

(d) receipt of grant or loan funds, awarded or administered by a county, state or federal agency; and/or

(e) elimination of a threat to public health or safety, such as, but not limited to, certification by the Department of Environmental Protection.

Subject to the foregoing, the Authority reserves the right, at its complete discretion, to decide whether it will or will not absorb all or any part of any Water Main Extension cost regardless of whether the Water Line Extensions are or are not a public benefit. The Authority, however, will be subject to payment of any refunds currently in effect or as may be agreed upon.

Refunds will apply only when property other than the developers will receive direct benefit by the installation of a Main Extension. Repayment will be for a ten (10) year time period, calculation based on a fifty percent (50%) front footage assessment of actual installation cost.

2. The cost of the Main Extension or installation shall include the following:

(a) The cost of water lines at least eight (8) inches in size, except in very unusual instances where a lesser size inch line is approved, the smaller diameter being considered only for very short streets where there is practically no possibility of any further extension or need for fire protection.

(b) The cost of connections to the existing main lines.

(c) The cost of all main lines, meters, valves, valve boxes, fittings, fire hydrants and all related work.

(d) The cost of all land and rights of way, required by the Authority for such Main Extension.

(e) The cost of all hydrostatic tests of all facilities and elimination of leakage and loss of water, of disinfection of all facilities, of all bacterial and other tests and such other items of testing and disinfecting as the Authority may deem appropriate.

C. PAYMENT OF COST

1. The Owner shall deposit with the Authority, prior to the execution of any work, a sum of money sufficient to pay all the estimated costs of the water main extension, as determined in accordance with the procedures set forth herein, the deposit to be made upon the execution of an agreement between the Authority and the Owner. No interest shall be paid on any deposit.

D. AGREEMENT

1. The Owner shall enter into an agreement with the Authority prior to the execution of any work with the agreement to contain but not be limited to the following:

- (a) The cost of all work and tests to be borne by the Owner.
- (b) The materials and workmanship to be in accordance with the Specifications of the Authority.
- (c) The highways, streets, alleys and lanes in which the water main extension is to be located to be dedicated to public use and the lines and grades thereof established.
- (d) The ownership of all installations, as well as all properties and/or rights of way as required, to be conveyed to and vested in the Authority.
- (e) The Authority to have the right to make further extensions beyond or laterally from the Main Extension with such Extension Main not to be considered as connections and not to be subject to any refund.
- (f) All water lines are to be extended to the far property line of the last property serviced, unless the Authority deems alternate extension is otherwise necessary or reasonable.

X. MISCELLANEOUS REGULATIONS

A. ACCESS BY AUTHORITY PERSONNEL

1. Any authorized Authority employee, upon presentation of credentials, shall be provided with access to any Premises, at all reasonable hours, for the purpose of reading meters, making inspection, replacing or repairs, and securing any other information the Authority deems necessary. If the Owner or Customer neglects or refuses to provide reasonable access to the premises by Authority personnel, the Authority shall send written notice to the Owner and/or Customer requesting access to the property at a mutually convenient time, and if the Customer again refuses or neglects to provide access to Authority personnel, service may be discontinued, and the Authority will not be liable for any damages or inconvenience suffered by the Owner and/or Customer because of such termination.

B. TEMPORARY INTERRUPTION OF SERVICE

1. During any emergency, and during the changing or testing of Meters, the Authority has the right to temporarily interrupt service to make repairs or connections. The Authority will make a reasonable attempt to notify Customers of such service interruptions if reasonably

possible. The Authority will not be liable for any damage or inconvenience suffered due to service interruptions or due to failure to provide notice of such interruptions.

C. WATER EMERGENCY

1. The Authority has the right to declare a "water emergency" due to a water shortage or other emergency conditions, and to impose any water use restrictions deemed by the Authority to be necessary during such an emergency. Water emergency restrictions will continue in effect until terminated by the Authority.

2. The Authority Manager, the Authority Chairman, or in their absence, the ViceChairman, are authorized to act jointly or severally for the Authority to declare a "water emergency" and to impose water use restrictions.

3. Notice of a "water emergency" declaration and water use restrictions will be published in a newspaper of general circulation.

4. It is also recognized that governmental agencies, such as the Pennsylvania Department of Environmental Resources, the Pennsylvania Emergency Management Council, United States Environmental Protection Agency and others, may declare water emergencies and require the Authority to restrict or prohibit certain water uses, and that these Rules and Regulations are subject to such requirements.

XI. TERMS OF PAYMENT

A. BILLS RENDERED

1. The Authority has provided that each Customer's Meter will be read monthly. The Authority hereby reserves the right to estimate each meter on a monthly basis in any area or for any individual customer or customers.

B. COMPUTATION OF BILLS

1. Bills for metered service will be determined according to the Schedule of Water Rates.

2. Where the Meter fails to register or is found to be faulty, a bill will be determined based on the Customer's average usage.

3. Bills for a partial billing period will be determined according to the Schedule of Water Rates established by the Authority from time to time.

C. BILLS DUE AND PAYABLE

1. All bills shall be payable immediately upon receipt thereof and in no case shall be paid later than the due date appearing on the bill. Bills remaining unpaid after this date shall be considered delinquent, which delinquency may be grounds for discontinuance of service.

2. Charges for connections, temporary uses, and special services shall be payable on demand.

3. Payment delivered to the Authority as evidenced by the receipt date stamped on the bill by Authorized personnel, on or previous to the due date of the bill, will be considered timely payment.

4. Payment mailed, by the United States Postal Service are considered paid as of the date received in our office not post marked. A Customer may be billed for any delinquency or penalty incurred as a result of bills received after a payment deadline.

5. Water billed under the same name in different Premises will not be combined, and each installation will be billed separately.

D. BILLS OF DOUBTFUL ACCURACY

1. It is the Customer's responsibility to carefully examine every bill and report any potential inaccuracy to the Authority. Any Customer who doubts the accuracy of a bill shall bring or mail the bill prior to the due date of the bill, to the Authority office. The Authority will check the bill, and either confirm the original billing or issue a corrected bill. Should the Authority determine that any bills issued were issued inaccurately, incorrectly or reflect an incorrect usage amount, the Authority reserves the right to amend bills to reflect actual water usage, even if a previous bill has been presented and billed

E. FAILURE TO RECEIVE BILL

1. The presentation of a bill to the Customer is only a matter of accommodation. Failure to receive a bill shall not exempt a customer from the obligation to pay the bill by its due date. Should the Authority determine that any bills missed, skipped, lost, or otherwise unsent or sent inaccurately or reflect an incorrect usage amount, the Authority reserves the right to amend bills to reflect actual water usage, even if a previous bill has been presented and billed.

F. CHARGES FOR LATE PAYMENT

1. Charges paid after the due date appearing on the bill will be subject to the addition of a ten (10%) per cent penalty. Whenever a bill becomes delinquent, written notice will be given, after which, if the bill is still unpaid, Water Service to the premises of the delinquent customer

will be shut off. The customer will not again be provided with Water Service until all charges owed by the Customer have been paid, together with the fee for restoring water service as set forth in the Authority Rate Schedule as may be established by the Authority from time to time.

G. RETURNED CHECKS

1. When a Customer's check is returned to the Authority by the bank for any reason, the Authority will impose a service charge for an amount as set forth in the Authority Rate Schedule as may be established by the Authority from time to time for each occurrence.

H. CONNECTION CHARGE

1. Each applicant for a service connection shall pay a connection charge in accordance with the Schedule of Charges for Service Connections. The connection charge is in addition to all other charges, fees, and deposits required by the Authority.

XII. MISCELLANEOUS

A. GROUND WIRE ATTACHMENTS

1. All customers are forbidden to attach any ground wire or wires to any plumbing which is or may be connected to a service connection or main belonging to the Authority, and the Authority will hold the customer liable for any damage to its property occurred by such ground wire attachments.

B. ACTS OF AUTHORITY EMPLOYEES AND/OR OTHERS

1. No agent or employee of the Authority shall have the power or right to bind the Authority by any promise, agreement, or representation contrary to these Rules and Regulations.

C. AVAILABILITY -RULES AND REGULATIONS

1. Copies of these Rules and Regulations Governing Water Service may be obtained at the Office of the Authority for that amount per copy as set forth in the Authority Rate Schedule established by the Authority from time to time. Copies are available for review at the office of the Authority at all times during regular working hours or on the Authority's website.

Application of Pennsylvania-American Water Company for approval of the right to: (1) acquire substantially all of the East Dunkard Water Authority's assets, properties and rights related to its water system to Pennsylvania-American Water Company, and (2) begin to offer, render, furnish or supply water service to the public in Dunkard, and portions of Monongahela, Greene, Cumberland, Perry, and Whiteley Townships, Greene County, Pennsylvania

Docket No. A-2024-3049759

PAWC's Responses to TUS Set I

A-10. Please verify that PAWC will be able to provide adequate water supply, treatment, storage, and distribution capacity to meet present and future customer demands within the requested territory.

Response: As described in our response to A-6, there is sufficient production capacity to handle current average and peak daily customer demands. There is little to no growth in the East Dunkard Water Authority's system. In 2012, the Authority reported that they served 1,642 total customers. In 2023, the Authority reported that they served 1,630 customers. Because of the lack of growth in the system, future demands are not expected to increase significantly. Therefore, the current production capacity will be sufficient to meet future customer demands.

Responsible Witness: Daniel J. Hufton – Manager, Engineering – Business Development
Pennsylvania-American Water Company

Date: July 25, 2024

Application of Pennsylvania-American Water Company for approval of the right to: (1) acquire substantially all of the East Dunkard Water Authority's assets, properties and rights related to its water system to Pennsylvania-American Water Company, and (2) begin to offer, render, furnish or supply water service to the public in Dunkard, and portions of Monongahela, Greene, Cumberland, Perry, and Whiteley Townships, Greene County, Pennsylvania

Docket No. A-2024-3049759

PAWC's Responses to TUS Set I

A-11. The Application's Appendix O included a copy of a Pennsylvania Department of Environmental Protection (DEP) Administrative Order dated August 25, 2022 (2022 Administrative Order), issued to EDWA and the East Dunkard Water Association that references numerous inspections, field orders and Notices of Violations. Please provide copies of all inspections, field orders and Notices of Violations referenced in the 2022 Administrative Order.

Response: As part of our due diligence efforts for acquisition, the Company performed a file review of documents at DEP's Southwest Regional Office on November 23, 2022. **TUS A-11-1_Attachment** contains copies of all DEP inspection reports obtained from the file review that were dated between the period of July 20, 2021 (the first inspection date referenced in the 2022 Administrative Order) and August 25, 2022 (the date of the 2022 Administrative Order). **TUS A-11-2_Attachment** contains copies of all DEP Notices of Violation obtained from the file review during that same period.

Responsible Witness: Daniel J. Hufton – Manager, Engineering – Business Development
Pennsylvania-American Water Company

Date: July 25, 2024

WATER SUPPLY INSPECTION REPORT

Facility Name EAST DUNKARD WATER AUTHORITY	PWSID No 5300012	Inspection Date 2021-07-21
Facility Location ROUTE 88 DILLINER PA 15327	County Greene	Municipality Monongahela
Responsible Officials Name HOLBERT,MGR JAMES	Telephone: (724) 943-3713	
	SystemType: Community	Population: 3962
Certified Operator name HOLBERT JAMES W JR	Field Order Number: ----	
	Issue Date(mm/dd/yy): ----	

Person(s) Interviewed

Name: JIM HOLBERT

Title: OPERATOR

eFACTS info

Inspection ID: 3223868

Inspection Type: RTPT

Violations

B3B - 25 PA Code, Chapter 109.701(a)(3)

2A - TREATMENT PLANT

WTP - 300 - EAST DUNKARD TRT PLT

OTHER SIGNIFICANT DEFICIENCIES

B3b: The water system failed to provide 1-hour notification to DEP informing them that a priority violation exists relating to the treatment plant, which is a violation of Title 25 Pa. Code 109.701(a)(3).

Remarks: Department not notified of variable speed mixer failure in clarifier, which has been inoperable for at least one year

2J - CHLORINE DISINFECTION

WTP - 300 - EAST DUNKARD TRT PLT

OTHER SIGNIFICANT DEFICIENCIES

B3b: The water system failed to provide 1-hour notification to DEP informing them that a priority violation exists relating to the chlorine treatment, which is a violation of Title 25 Pa. Code 109.701(a)(3).

Remarks: Department not notified when chlorine analyzer at Griffin Tank Entry Point was disabled during storm on July 17. The chlorine analyzer is still inoperable and needs to be repaired within 5 working days of the malfunction. Until then, grab samples are required to be collected every 4 hours.

B6A - 25 PA Code, Chapter 109.4**2B - CONVENTIONAL FILTRATION**

WTP - 300 - EAST DUNKARD TRT PLT

OTHER SIGNIFICANT DEFICIENCIES

B6a: Violations exist that are deemed to be a significant deficiency relating to the conventional filtration treatment. This is a violation of Title 25 Pa. Code 109.4.

Remarks: Failure to notify Dept. when clarifier unit became inoperable. Failure to provide filter to waste for a full filter unit volume after backwashes and filter start up or obtain Dept. approval for an alternate method. Failure to provide filter bed evaluation program.

Turbidity spikes in July 2021 recorded and no cause identified. Numerous turbidity spikes on both IFE and CFE during the past 12 months which reached the recording equipment's set limits (1.0 for CFE and 2.5 for IFE)

B6A - 25 PA Code, Chapter 109.4**2J - CHLORINE DISINFECTION**

WTP - 300 - EAST DUNKARD TRT PLT

OTHER SIGNIFICANT DEFICIENCIES

B6a: Violations exist that are deemed to be a significant deficiency relating to the chlorine treatment, which is a violation of Title 25 Pa. Code 109.4.

Remarks: Failure to report that Entry Point chlorine analyzer was not operational and grab samples were not collected every 4 hours beginning with the malfunction on 7/17/2021 until 7/21/2021 at 08:30

B6E - 25 PA Code, Chapter 109.703(c)

TUS A-11-1_Attachment

8 - SYSTEM MANAGEMENT

DS - 001 - DUNKARD TWP

ALARMS & SHUTDOWNS

B6e: The water system is chronically failing to test alarm and shutdown capabilities, which is a violation of Title 25 Pa. Code 109.703(c)

Remarks: No quarterly testing of alarms.

B6F - 25 PA Code, Chapter 109.304(a)

6 - MONITORING AND REPORTING

DS - 001 - DUNKARD TWP

OTHER SIGNIFICANT DEFICIENCIES

B6f: The water system is chronically failing to follow approved methods for sampling and analysis, which is a violation of Title 25 Pa. Code 109.304(a).

Remarks: No Method 334 used

C1A - 25 PA Code, Chapter 109.602

2A - TREATMENT PLANT

WTP - 300 - EAST DUNKARD TRT PLT

GENERAL INFORMATION

Operational backup units are not available for all treatment processes, which does not meet the design standards set forth in the Public Water Supply Manual.

Remarks: No back up unit for variable speed mixer in clarifier, which has been inoperable for at least one year

C1A - 25 PA Code, Chapter 109.602

8 - SYSTEM MANAGEMENT

DS - 001 - DUNKARD TWP

ALARMS & SHUTDOWNS

Alarm setpoints are not established at a level no less stringent than the level needed to continuously maintain compliance, which does not meet the design standards set forth in the Public Water Supply Manual.

Remarks: Turbidity alarms should not be set above regulatory requirements

8 - SYSTEM MANAGEMENT

DS - 001 - DUNKARD TWP

ALARMS & SHUTDOWNS

The filter plant is not staffed continuously while the plant is operating and is not equipped with shutdown capabilities; which does not meet the design standards set forth in the Public Water Supply Manual.

C2A - 25 PA Code, Chapter 109.301**2B - CONVENTIONAL FILTRATION**

WTP - 300 - EAST DUNKARD TRT PLT

FILTRATION

IFE turbidity measurements are not continuously monitored from each filter and/or recorded at least every 15 minutes.

Remarks: IFE turbidimeters are capped at 2.5 NTU

C2A - 25 PA Code, Chapter 109.301**6 - MONITORING AND REPORTING**

DS - 001 - DUNKARD TWP

ACCREDITATION-BY-RULE

The water system did not collect grab samples for turbidity and/or chlorine residual (as applicable) every four hours during periods of continuous monitoring equipment failure.

Remarks: Upon notification by DEP, chlorine samples were taken every four hours at Griffin Tank Entry Point when chlorine analyzer was inoperable. One sample taken daily prior to notification. A Tier 3 Public Notice is required for this monitoring violation.

C2G - 25 PA Code, Chapter 109.1305**2J - CHLORINE DISINFECTION**

WTP - 300 - EAST DUNKARD TRT PLT

CT INFORMATION

The chlorine residual is not continuously monitored and recorded at least every 15 minutes.

Remarks: Chlorine meter at Griffin Tank Entry Point inoperable since July 17th due to storm. Department not notified and grab samples were not collected every 4 hours beginning with the malfunction on 7/17/2021. Tier 3 Public Notification is required for this monitoring violation.

2B - CONVENTIONAL FILTRATION

WTP - 300 - EAST DUNKARD TRT PLT
FILTRATION

Following a backwash, operators do not filter-to-waste for one full filter volume and until turbidity levels are less than 0.30 NTU, or if using an alternate technique until the post-backwash turbidity spike is less than 0.15 NTU.

Remarks: No filter to waste for one full filter volume after backwash. Backwash runs 10 minutes and/or 0.2 NTU

C3D - 25 PA Code, Chapter 109.703(b)**2B - CONVENTIONAL FILTRATION**

WTP - 300 - EAST DUNKARD TRT PLT
FILTRATION

The filter plant does not have filter-to-waste capability and the operators are not following alternate operating techniques to minimize initial increased turbidity following a filter backwash.

Remarks: No filter to waste for one full filter volume or alternate operating techniques

C3E - 25 PA Code, Chapter 109.703(b)(5)**2B - CONVENTIONAL FILTRATION**

WTP - 300 - EAST DUNKARD TRT PLT
FILTRATION

The water system does not implement a filter bed evaluation that is acceptable to the Department.

Remarks: No filter bed evaluation program

C3F - 25 PA Code, Chapter 109.703(c)**8 - SYSTEM MANAGEMENT**

DS - 001 - DUNKARD TWP
ALARMS & SHUTDOWNS

The alarm and shutdown capabilities are not tested quarterly.

Remarks: No quarterly testing of alarms

2J - CHLORINE DISINFECTION

WTP - 300 - EAST DUNKARD TRT PLT

CT INFORMATION

Flow rate meters used to collect measurements needed to calculate log inactivation are not calibrated and/or functioning properly.

Remarks: No flow meter at Griffin Tank Entry Point

C7 - 25 PA Code, Chapter 109.703(a)

2G - CHEMICAL ADDITION, CORROSION CONTROL, IRON AND MANGANESE TREATMENT AND FLUORIDATION

WTP - 300 - EAST DUNKARD TRT PLT

PERMIT CONDITIONS

The water system is not complying with special permit conditions relating to chemical addition, corrosion control, iron /manganese treatment and/or fluoridation.

Remarks: System is not monitoring in accordance with permit.

D3 - 25 PA Code, Chapter 109.701(i)

2B - CONVENTIONAL FILTRATION

WTP - 300 - EAST DUNKARD TRT PLT

FILTRATION

The CFE turbidimeter and recording device are not capable of reading and recording turbidities at least 1.5 NTU.

Remarks: CFE capped at 1.0 NTU. CFE is also placed after the addition of chlorine and orthophosphate. Consult with the Department's technical services section regarding the relocation of the turbidimeter or utilization of a flow weighted average of IFEs.

Minor Deficiency

2B- CONVENTIONAL FILTRATION

FILTRATION

WTP - 300 - EAST DUNKARD TRT PLT

Operators do not measure bed expansion during filter backwashes as required as part of a filter bed evaluation acceptable to the Department.

Remarks:No filter bed expansion measured. No filter bed evaluation program implemented

2B- CONVENTIONAL FILTRATION

TUS A-11-1_Attachment

FILTRATION

WTP - 300 - EAST DUNKARD TRT PLT

Filter effluent flow rater meters are not calibrated and/or functioning properly.

Remarks:No flow meters for IFEs

2J- CHLORINE DISINFECTION

CT INFORMATION

WTP - 300 - EAST DUNKARD TRT PLT

The chlorine residual is not continuously monitored and recorded at least every 15 minutes.

Remarks:Chlorine meter at Griffin Tank Entry Point inoperable since July 17, 2021.

6- MONITORING AND REPORTING

ACCREDITATION-BY-RULE

DS - 001 - DUNKARD TWP

Accreditation-by-rule parameters are not analyzed by an accredited lab, an appropriately certified operator or an individual following an SOP written by an appropriately certified operator.

Remarks:Method 334 not being used

6- MONITORING AND REPORTING

METHOD 334.0

DS - 001 - DUNKARD TWP

There is no documentation to demonstrate that each individual that conducts analysis of chlorine for compliance monitoring or comparison grab samples at the water system has completed the analyst IDC in accordance with EPA Method 334.0.

Remarks:No Method 334 used

6- MONITORING AND REPORTING

METHOD 334.0

DS - 001 - DUNKARD TWP

There is no documentation to demonstrate that the initial calibration verification has been completed in accordance with EPA Method 334.0 for each handheld or benchtop instrument used for analysis of chlorine for compliance monitoring, comparison grab samples or to obtain results needed to calculate log inactivation.

Remarks:No Method 334 used

6- MONITORING AND REPORTING

TUS A-11-1_Attachment

METHOD 334.0

DS - 001 - DUNKARD TWP

There is no documentation to demonstrate that each on-line instrument used for analysis of chlorine for compliance monitoring or to obtain results needed to calculate log inactivation has passed the instrument IDC in accordance with EPA Method 334.0.

Remarks:No Method 334 used

6- MONITORING AND REPORTING

METHOD 334.0

DS - 001 - DUNKARD TWP

There is no documentation for the most recent 12 months to demonstrate that routine quarterly calibration verifications have been completed in accordance with EPA Method 334.0 for each handheld or benchtop instrument used for analysis of chlorine to compliance monitoring, comparison grab samples or to obtain results needed to calculate log inactivation.

Remarks:No Method 334 used

6- MONITORING AND REPORTING

METHOD 334.0

DS - 001 - DUNKARD TWP

There is no documentation for the most recent 12 months to demonstrate that routine weekly comparative grab sampling analysis has been completed in accordance with EPA Method 334.0 for each on-line instrument used for analysis of chlorine for compliance monitoring or to obtain results needed to calculate log inactivation.

Remarks:No Method 334 used

8- SYSTEM MANAGEMENT

FILTRATION RECORDS

DS - 001 - DUNKARD TWP

The water system is failing to maintain records relating to the implementation of their filter bed evaluation program.

Remarks:No filter bed evaluation program implemented

Received by(Print Name):

JIM HOLBERT

Unable To Receive Signature:

Completed after leaving site

Investigator (Print Name):

PATRICIA MILLER

WATER SUPPLY INSPECTION REPORT

Facility Name EAST DUNKARD WATER AUTHORITY	PWSID No 5300012	Inspection Date 2021-07-27
Facility Location ROUTE 88 DILLINER PA 15327	County Greene	Municipality Monongahela
Responsible Officials Name HOLBERT,MGR JAMES	Telephone: (724) 943-3713	
	SystemType: Community	Population: 3962
Certified Operator name HOLBERT JAMES W JR	Field Order Number: ----	
	Issue Date(mm/dd/yy): ----	

Person(s) Interviewed

Name: SAM	Title: ENGINEER
Name: JIM HOLBERT	Title: OPERATOR

eFACTS info

Inspection ID: 3225290	Inspection Type: ADMIN

B6A - 25 PA Code, Chapter 109.4

6 - MONITORING AND REPORTING

DS - 001 - DUNKARD TWP

OTHER SIGNIFICANT DEFICIENCIES

B6a: Violations exist that are deemed to be a significant deficiency relating to monitoring and reporting, which is a violation of Title 25 Pa. Code 109.4.

Remarks: The system chronically fails to accurately report hours of operation.

B6C - 25 PA Code, Chapter 109.701

6 - MONITORING AND REPORTING

DS - 001 - DUNKARD TWP

GENERAL MONITORING & REPORTING

B6c: The water system is chronically failing to ensure that all data reported to the Department accurately represents test results. This is a violation of Title 25 Pa. Code 109.701.

Remarks: The system chronically fails to accurately report hours of operation.

D3 - 25 PA Code, Chapter 109.701(i)

6 - MONITORING AND REPORTING

DS - 001 - DUNKARD TWP

GENERAL MONITORING & REPORTING

The water system failed to ensure that all data reported to the Department accurately represents test results.

Remarks: The system fails to properly calculate hours of operation.

General Comments

During a phone call with the consulting engineer, and then confirmed with the operator (both on July 27, 2021), it was stated that the system does not use accurate readings to determine hours of operation. Instead, the system takes the gallons of water produced and divides by the number of gallons the system can produce in an hour.

Received by(Print Name):

JIM HOLBERT

Unable To Receive Signature:

Completed offsite

Investigator (Print Name):

ERIC NORMAN

WATER SUPPLY INSPECTION REPORT

Facility Name EAST DUNKARD WATER AUTHORITY	PWSID No 5300012	Inspection Date 2021-08-16
Facility Location ROUTE 88 DILLINER PA 15327	County Greene	Municipality Monongahela
Responsible Officials Name HOLBERT,MGR JAMES	Telephone: (724) 943-3713	
	SystemType: Community	Population: 3962
Certified Operator name HOLBERT JAMES W JR	Field Order Number: ----	
	Issue Date(mm/dd/yy): ----	

Person(s) Interviewed

Name: JIM HOLBERT	Title: OPERATOR
Name: MICHELLE POPERNACK	Title: OFFICEMANAGER

eFACTS info

Inspection ID: 3235660	Inspection Type: ADMIN

A2B - 25 PA Code, Chapter 109.202(c)

2B - CONVENTIONAL FILTRATION

WTP - 300 - EAST DUNKARD TRT PLT

FILTRATION

A2b: The filter plant is experiencing a CFE turbidity reading greater than the regulatory limit of 1 NTU. This is a violation of Title 25 Pa. Code 109.202(c).

Remarks: The CFE turbidity reached the regulatory limit on August 10, 2021 for greater than 60 minutes. The CFE turbidimeter has been capped at 1.0 NTU.

B4 - Section 13(a) of the PA SDWA (35 P.S. Section 721.13(a)) and 25 PA Code, Chapter 109.4(4)

8 - SYSTEM MANAGEMENT

DS - 001 - DUNKARD TWP

OTHER SIGNIFICANT DEFICIENCIES

B4: The water system failed to comply with an Order issued by DEP, which is a violation of Section 13(a) of the PA SDWA (35 P.S. Section 721.13(a)) and Title 25 Pa. Code 109.4(4).

Remarks: The PWS did not issue the abbreviated notice properly, had not flushed the distribution system as of noon of August 16, 2021, collected the incorrect number of Coliform samples, and collected the samples prior to flushing.

D7 - 25 PA Code, Chapter 109.701(a)(3)

6 - MONITORING AND REPORTING

DS - 001 - DUNKARD TWP

GENERAL MONITORING & REPORTING

The water system failed to notify DEP within 1-hour of determining that a non-imminent threat situation existed at least once in the past three years.

Remarks: The PWS failed to notify the Department within 1 hour of a turbidity violation that took place on August 10, 2021.

OPERATOR RESPONSIBILITIES

The actions and/or inactions of the operator(s) led to the water system being out of compliance.

Remarks:Operator did not flush the system per the Field Order.

OTHER SIGNIFICANT DEFICIENCIES

The actions and/or inactions of the operator(s) led to the water system experiencing an imminent threat or priority violation.

Remarks:The operator did not check the turbidity data after the alarm went off, did not notify the Department with 1 hour, and did not flush or sample pursuant to the Field Order.

General Comments

On August 10, 2021, the facility was pumping water from the clearwell at a turbidity of 1.0NTU for greater than 60 minutes. The CFE turbidimeter is capped at the regulatory limit of 1.0NTU as mentioned in Inspection ID# 3223868 from July 21, 2021. Although the incident took place on August 10, 2021, the Department was not notified until 1:04PM on August 11, 2021. The Department was not able to interview the facility operator until the morning of August 12, 2021.

A Field Order (FO) was issued to the system by the Department on August 12, 2021. Per the FO, the system was to issue a Tier 1 PN in the form of a Boil Water Advisory in accordance with PA code, including §109.411. However, the abbreviated notice was not in compliance with §109.411(b) as the notice did not describe the violation or situation, did not include the contaminants observed, and did not specify whether an alternate water source should be used.

As of noon on August 16, 2021, no flushing had occurred in the distribution system as ordered in the August 12, 2021 FO. Coliform samples were, however, taken prior to flushing which was not in compliance with Corrective Action 3 from the FO. Additionally, the correct number of coliform samples were not collected pursuant to the Technical Guidance Document "Policy for Issuing and Removing Water Supply Warnings (383-2129-005)" as stated in Corrective Action 3 of the FO. The guidance document was provided to the system on August 13, 2021.

Received by(Print Name):

JIM HOLBERT

Unable To Receive Signature:

Complete offsite

Investigator (Print Name):

ERIC NORMAN

WATER SUPPLY INSPECTION REPORT

Facility Name EAST DUNKARD WATER AUTHORITY	PWSID No 5300012	Inspection Date 2021-09-09
Facility Location ROUTE 88 DILLINER PA 15327	County Greene	Municipality Monongahela
Responsible Officials Name HOLBERT,MGR JAMES	Telephone: (724) 943-3713	
	SystemType: Community	Population: 3962
Certified Operator name FADDIS TIMOTHY C	Field Order Number: ----	
	Issue Date(mm/dd/yy): ----	

Person(s) Interviewed

Name: LARRY VINCIES	Title: ACTIVEPRESBOARD
Name: SAM CARROLL	Title: ENGINEER
Name: JIM HOLBERT	Title: OPERATOR
Name: JERRY DORSEY	Title: BOARDMEMBER
Name: JUSTIN ROBINSON	Title: LABOROR

eFACTS info

Inspection ID: 3252679	Inspection Type: RTNC

B3B - 25 PA Code, Chapter 109.701(a)(3)

2A - TREATMENT PLANT

WTP - 300 - EAST DUNKARD TRT PLT

OTHER SIGNIFICANT DEFICIENCIES

B3b: The water system failed to provide 1-hour notification to DEP informing them that a priority violation exists relating to the treatment plant, which is a violation of Title 25 Pa. Code 109.701(a)(3).

Remarks: As mention in Inspection ID# 3223868, the Department was not notified of a variable speed mixer failure in the clarifier, which has been inoperable for at least one year.

B3B - 25 PA Code, Chapter 109.701(a)(3)

2B - CONVENTIONAL FILTRATION

WTP - 300 - EAST DUNKARD TRT PLT

OTHER SIGNIFICANT DEFICIENCIES

B3b: The water system failed to provide 1-hour notification to DEP informing them that a priority violation exists relating to the conventional filtration, which is a violation of Title 25 Pa. Code 109.701(a)(3).

Remarks: The PWS failed to notify the Department within 1-hour of turbidity exceedances on August 10, 2021.

B3B - 25 PA Code, Chapter 109.701(a)(3)

2J - CHLORINE DISINFECTION

WTP - 300 - EAST DUNKARD TRT PLT

OTHER SIGNIFICANT DEFICIENCIES

B3b: The water system failed to provide 1-hour notification to DEP informing them that a priority violation exists relating to the chlorine treatment, which is a violation of Title 25 Pa. Code 109.701(a)(3).

Remarks: As mentioned in Inspection ID# 3223868, the PWS failed to notify the Department when the chlorine analyzer at the Griffin tank was disabled during a July 17th storm.

8 - SYSTEM MANAGEMENT

DS - 001 - DUNKARD TWP

OTHER SIGNIFICANT DEFICIENCIES

B4: The water system failed to comply with an Order issued by DEP, which is a violation of Section 13(a) of the PA SDWA (35 P.S. Section 721.13(a)) and Title 25 Pa. Code 109.4(4).

Remarks: The PWS violated Field Order# 53-21-1627-022 for failure to provide EP chlorine for August 20-23, 2021, for not including "any relevant events or factors which affect sample results, such as backwashes or calibrations...clearly indicated on these data submissions," for operating without personnel prior to alarm verification, and for not providing SOPs for Tier 1 Public Notices and 1-hour notifications.

B6A - 25 PA Code, Chapter 109.4

2A - TREATMENT PLANT

WTP - 300 - EAST DUNKARD TRT PLT

OTHER SIGNIFICANT DEFICIENCIES

B6a: Violations exist that are deemed to be a significant deficiency relating to the treatment plant or treatment processes, which is a violation of Title 25 Pa. Code 109.4.

Remarks: The staff has not been properly trained how to use SCADA.

B6A - 25 PA Code, Chapter 109.4

2B - CONVENTIONAL FILTRATION

WTP - 300 - EAST DUNKARD TRT PLT

OTHER SIGNIFICANT DEFICIENCIES

B6a: Violations exist that are deemed to be a significant deficiency relating to the conventional filtration treatment. This is a violation of Title 25 Pa. Code 109.4.

Remarks: Issues as mentioned in Inspection ID# 3223868. Additionally: the PWS does not filter-to-waste properly, there is a significant lack of waste-holding capacity, there are mud balls forming on the filter, the media is uneven and the sand and anthracite have mixed, the CFE turbidimeter remains in the wrong location, and the backwashing SOP is insufficient

2J - CHLORINE DISINFECTION

WTP - 300 - EAST DUNKARD TRT PLT

OTHER SIGNIFICANT DEFICIENCIES

B6a: Violations exist that are deemed to be a significant deficiency relating to the chlorine treatment, which is a violation of Title 25 Pa. Code 109.4.

Remarks: There is no reliable fan in the chlorine room and no leak-detection alarm. There is no SCBA for the gas chlorine. A face mask with cartridge filters is used instead, but the location of additional cartridges is unknown. Additionally, CT parameters are not collected at the end of the disinfection segment and an SOP for changing chlorine cylinders is absent.:

B6F - 25 PA Code, Chapter 109.304(a)**6 - MONITORING AND REPORTING**

DS - 001 - DUNKARD TWP

OTHER SIGNIFICANT DEFICIENCIES

B6f: The water system is chronically failing to follow approved methods for sampling and analysis, which is a violation of Title 25 Pa. Code 109.304(a).

Remarks: As mentioned in Inspection ID#3223868 and the previous Sanitary Survey, Method 334 is not being utilized.

C1A - 25 PA Code, Chapter 109.602**2A - TREATMENT PLANT**

WTP - 300 - EAST DUNKARD TRT PLT

GENERAL INFORMATION

Appropriate safety equipment is not provided in the treatment plant, which does not meet the design standards set forth in the Public Water Supply Manual.

Remarks: There is no SCBA, the PWS is currently using a mask with cartridges. When asked, the location of additional cartridges is unknown.

2A - TREATMENT PLANT

WTP - 300 - EAST DUNKARD TRT PLT

CHEMICALS AND EQUIPMENT

The chemical storage tanks do not have secondary containment sufficient to hold the volume of 110% of the largest tank to prevent accidental discharge in the event of a spill or overflow. This does not meet the design standards set forth in the Public Water Supply Manual.

Remarks: The two DelPAC tanks, orthophosphate drums, and caustic soda drum do not have secondary containment. All floor drains led to the sludge pond which is full such that spills may be directly discharge to the river.

C1A - 25 PA Code, Chapter 109.602

2J - CHLORINE DISINFECTION

WTP - 300 - EAST DUNKARD TRT PLT

GASEOUS CHLORINE DISINFECTION CHEMICALS AND EQUIPMENT

There is not a working exhaust fan in the chlorine room that pulls air from near the floor, which does not meet the design standards set forth in the Public Water Supply Manual.

Remarks: The fan is corroded and did not immediately start up. The operator had to fix it and said it was hung up. This issue was mentioned in the last Sanitary Survey.

C1A - 25 PA Code, Chapter 109.602

2J - CHLORINE DISINFECTION

WTP - 300 - EAST DUNKARD TRT PLT

GASEOUS CHLORINE DISINFECTION CHEMICALS AND EQUIPMENT

The water system does not have a safety plan, an onsite self-contained breathing apparatus, and/or a contract with a local HAZMAT response team in case of emergency, which does not meet the design standards set forth in the Public Water Supply Manual.

Remarks: There is no onsite SCBA.

C1A - 25 PA Code, Chapter 109.602

4 - WATER STORAGE

ST - 002 - CLEARWELL #2

GENERAL GROUNDS

The overflow discharges are not screened, which does not meet the design standards set forth in the Public Water Supply Manual.

Remarks: The clearwell overflow is slotted, but not properly screened.

4 - WATER STORAGE

ST - 002 - CLEARWELL #2

STORAGE STRUCTURE

The interior of the storage structure is not protected from wildlife. This does not meet the design standards set forth in the Public Water Supply Manual.

Remarks: The overflow is not properly screened.

C1A - 25 PA Code, Chapter 109.602**4 - WATER STORAGE**

ST - 004 - BOBTOWN TANK

GENERAL GROUNDS

Overflow discharges do not terminate 12-24 inches above the ground. This does not meet the design standards set forth in the Public Water Supply.

Remarks: The gap is less than 12 inches; the pipe is also rusted and may need replaced. The issue was mentioned in the last Sanitary Survey.

C1A - 25 PA Code, Chapter 109.602**4 - WATER STORAGE**

ST - 008 - SUGAR GROVE TANK

GENERAL GROUNDS

The overflow discharges are not screened, which does not meet the design standards set forth in the Public Water Supply Manual.

Remarks: The pipe has been severed and now juts out of the top of the tank approximately three feet. There is no screen.

C1A - 25 PA Code, Chapter 109.602**4 - WATER STORAGE**

ST - 008 - SUGAR GROVE TANK

STORAGE STRUCTURE

The interior of the storage structure is not protected from wildlife. This does not meet the design standards set forth in the Public Water Supply Manual.

Remarks: The unscreened pipe allows access.

4 - WATER STORAGE

ST - 011 - BALD HILL TANK

GENERAL GROUNDS

Overflow discharges do not terminate 12-24 inches above the ground. This does not meet the design standards set forth in the Public Water Supply.

Remarks: The gap is less than 12 inches; this was mentioned in the last Sanitary Survey.

C1A - 25 PA Code, Chapter 109.602

4 - WATER STORAGE

ST - 013 - NEW CLARK TANK

GENERAL GROUNDS

Overflow discharges do not terminate 12-24 inches above the ground. This does not meet the design standards set forth in the Public Water Supply.

Remarks: The gap is only a few inches. This was mentioned in the last Sanitary Survey.

C1A - 25 PA Code, Chapter 109.602

4 - WATER STORAGE

ST - 014 - NEW SUGAR GROVE TANK

GENERAL GROUNDS

Overflow discharges do not terminate 12-24 inches above the ground. This does not meet the design standards set forth in the Public Water Supply.

Remarks: The gap is less than a couple inches. This was mentioned in the last Sanitary Survey.

C1A - 25 PA Code, Chapter 109.602

5 - PUMPS AND CONTROLS

PST - 005 - BALD HILL PS

PUMPING STATION

All pumping station components are not protected from unauthorized access, which does not meet the design standards set forth in the Public Water Supply Manual.

Remarks: There is no latch or lock on the pump station.

8 - SYSTEM MANAGEMENT

DS - 001 - DUNKARD TWP

ALARMS & SHUTDOWNS

Alarm setpoints are not established at a level no less stringent than the level needed to continuously maintain compliance, which does not meet the design standards set forth in the Public Water Supply Manual.

Remarks: While other alarm set points have been fixed, chlorine remains above the regulatory limit.

C1A - 25 PA Code, Chapter 109.602

8 - SYSTEM MANAGEMENT

DS - 001 - DUNKARD TWP

ALARMS & SHUTDOWNS

The filter plant is not staffed continuously while the plant is operating and is not equipped with shutdown capabilities; which does not meet the design standards set forth in the Public Water Supply Manual.

Remarks: The shutdowns are not currently in the correct locations.

C1F - 25 PA Code, Chapter 109.608

2A - TREATMENT PLANT

WTP - 300 - EAST DUNKARD TRT PLT

GENERAL INFORMATION

Cross-connection controls are not in place between potable and nonpotable water in the treatment plant.

Remarks: There is backflow prevention, but two hoses on the ground could cause issues between chemicals/taps. Annual CCC inspections were mentioned in the last Sanitary Survey.

C2A - 25 PA Code, Chapter 109.301

2B - CONVENTIONAL FILTRATION

WTP - 300 - EAST DUNKARD TRT PLT

FILTRATION

CFE turbidity measurements are not continuously monitored and/or recorded at least every 15 minutes.

Remarks: The CFE turbidimeter is not a true CFE because it is in the wrong location.

6 - MONITORING AND REPORTING

DS - 001 - DUNKARD TWP

ACCREDITATION-BY-RULE

Since the last sanitary survey, there have been failures of continuous monitoring equipment that extended beyond 5 working days without DEP approval.

Remarks: The chlorine analyzer at the Griffin tank. The Department needs to be notified within 1-hour of any analyzer or recoding equipment malfunctions.

C2B - 25 PA Code, Chapter 109.304(a)

6 - MONITORING AND REPORTING

DS - 001 - DUNKARD TWP

METHOD 334.0

There is no documentation to demonstrate that each individual that conducts analysis of chlorine for compliance monitoring or comparison grab samples at the water system has completed the analyst IDC in accordance with EPA Method 334.0.

Remarks: As mentioned in the last Sanitary Survey.

C2B - 25 PA Code, Chapter 109.304(a)

6 - MONITORING AND REPORTING

DS - 001 - DUNKARD TWP

METHOD 334.0

There is no documentation to demonstrate that the initial calibration verification has been completed in accordance with EPA Method 334.0 for each handheld or benchtop instrument used for analysis of chlorine for compliance monitoring, comparison grab samples or to obtain results needed to calculate log inactivation.

Remarks: As mentioned in the last Sanitary Survey.

C2B - 25 PA Code, Chapter 109.304(a)

6 - MONITORING AND REPORTING

DS - 001 - DUNKARD TWP

METHOD 334.0

There is no documentation to demonstrate that each on-line instrument used for analysis of chlorine for compliance monitoring or to obtain results needed to calculate log inactivation has passed the instrument IDC in accordance with EPA Method 334.0.

Remarks: As mentioned in the last Sanitary Survey.

6 - MONITORING AND REPORTING

DS - 001 - DUNKARD TWP

METHOD 334.0

There is no documentation for the most recent 12 months to demonstrate that routine quarterly calibration verifications have been completed in accordance with EPA Method 334.0 for each handheld or benchtop instrument used for analysis of chlorine to compliance monitoring, comparison grab samples or to obtain results needed to calculate log inactivation.

Remarks: As mentioned in the last Sanitary Survey.

C2C - 25 PA Code, Chapter 109.304(c)

6 - MONITORING AND REPORTING

DS - 001 - DUNKARD TWP

ACCREDITATION-BY-RULE

Accreditation-by-rule parameters are not analyzed by an accredited lab, an appropriately certified operator or an individual following an SOP written by an appropriately certified operator.

Remarks: As mentioned in the last Sanitary Survey.

C3D - 25 PA Code, Chapter 109.703(b)

2B - CONVENTIONAL FILTRATION

WTP - 300 - EAST DUNKARD TRT PLT

FILTRATION

Following a backwash, operators do not filter-to-waste for one full filter volume and until turbidity levels are less than 0.30 NTU, or if using an alternate technique until the post-backwash turbidity spike is less than 0.15 NTU.

Remarks: The backwash is not programmed to recognize a turbidity parameter; it simply operators off a timed programmed. Additionally, the backwash program has not been maintained for many years and the turbidity readings on the Tonka system currently reads approximately half the turbidity of the recently calibrated IFE turbidimeters. The PWS is not filtering to waste for one full filter volume.

C3E - 25 PA Code, Chapter 109.703(b)(5)

TUS A-11-1_Attachment

2B - CONVENTIONAL FILTRATION

WTP - 300 - EAST DUNKARD TRT PLT
FILTRATION

The water system does not implement a filter bed evaluation that is acceptable to the Department.

Remarks: There is no filter bed evaluation plan.

C3E - 25 PA Code, Chapter 109.703(b)(5)

2B - CONVENTIONAL FILTRATION

WTP - 300 - EAST DUNKARD TRT PLT
FILTRATION

Operators do not measure bed expansion during filter backwashes as required as part of a filter bed evaluation acceptable to the Department.

Remarks: This was mentioned in the last Sanitary Survey.

C4A - 25 PA Code, Chapter 109.4

2B - CONVENTIONAL FILTRATION

WTP - 300 - EAST DUNKARD TRT PLT
FLOCCULATION

The mechanical equipment for the mixers within the flocculation basins is not functioning properly.

Remarks: The equipment is not functioning.

C4A - 25 PA Code, Chapter 109.4

2B - CONVENTIONAL FILTRATION

WTP - 300 - EAST DUNKARD TRT PLT
SEDEMENTATION/CLARIFICATION

The sedimentation basins are not cleaned frequently enough to prevent excessive sludge buildup and water short circuiting.

Remarks: Short circuiting is likely occurring.

2B - CONVENTIONAL FILTRATION

WTP - 300 - EAST DUNKARD TRT PLT

SEDEMENTATION/CLARIFICATION

The sludge blanket in the upflow-solids-contact clarifier does not remain in suspension or there is not enough freeboard to prevent the top of the blanket from reaching the bottom of the effluent troughs.

Remarks: The blanket extends beyond the freeboard.

C4A - 25 PA Code, Chapter 109.4**2B - CONVENTIONAL FILTRATION**

WTP - 300 - EAST DUNKARD TRT PLT

FILTRATION

Mudballs or other debris is visible on top of the filter media.

Remarks: Mud balls are beginning to form on top the filter media.

C4A - 25 PA Code, Chapter 109.4**2B - CONVENTIONAL FILTRATION**

WTP - 300 - EAST DUNKARD TRT PLT

FILTRATION

There are obvious depressions or mounds of media visible in the filters.

Remarks: The media is not level.

C4A - 25 PA Code, Chapter 109.4**2B - CONVENTIONAL FILTRATION**

WTP - 300 - EAST DUNKARD TRT PLT

WASTE HANDLING

A lack of waste-holding capacity is preventing operators from backwashing filters when needed.

Remarks: The sludge pond is full to the top of the riser.

4 - WATER STORAGE

ST - 001 - CLEARWELL #1

STORAGE STRUCTURE

The water system does not inspect the interior of the storage tank. AWWA Standard M42 recommends that storage tanks are cleaned and inspected once every three years.

Remarks: The clearwell is not routinely inspected.

C4A - 25 PA Code, Chapter 109.4**4 - WATER STORAGE**

ST - 007 - CLARK TANK

STORAGE STRUCTURE

The exterior coating of the storage tank is peeled, cracked, rusted, covered in vegetation or in need of cleaning.

Remarks: The tank ladder is covered in vegetation and the tank exterior is rusted in several locations.

C4A - 25 PA Code, Chapter 109.4**4 - WATER STORAGE**

ST - 008 - SUGAR GROVE TANK

STORAGE STRUCTURE

The exterior coating of the storage tank is peeled, cracked, rusted, covered in vegetation or in need of cleaning.

Remarks: There are plants growing up the ladder and the exterior is very rusted.

C4A - 25 PA Code, Chapter 109.4**5 - PUMPS AND CONTROLS**

PST - 005 - BALD HILL PS

PUMPING STATION

The pumping station is not kept clean, orderly, and in good repair.

Remarks: The floor is dirty, parts are rusted, and the pump station is in general disrepair as mentioned in the last Sanitary Survey.

3 - DISTRIBUTION SYSTEM

DS - 001 - DUNKARD TWP

VALVES

Valves and blow-offs have not been exercised in accordance with the O&M plan.

Remarks: No proactive valve maintenance as mentioned in the last Sanitary Survey.

D2E - 25 PA Code, Chapter 109.1107(a)(1)

8 - SYSTEM MANAGEMENT

DS - 001 - DUNKARD TWP

PLANS, MAPS, AND REPORTS

The water system does not have a Lead and Copper Rule Sample Siting Plan that contains all required elements.

Remarks: The PWS does not have an adequate plan as mentioned in the last Sanitary Survey. The 2004 plan is inadequate due to improper site selection and does not have all the required information.

D2G - 25 PA Code, Chapter 109.718

8 - SYSTEM MANAGEMENT

DS - 001 - DUNKARD TWP

PLANS, MAPS, AND REPORTS

The water system does not have a Comprehensive Monitoring Plan that contains all required elements.

Remarks: The plan does not have all the required elements.

D2I - 25 PA Code, Chapter 109.708

8 - SYSTEM MANAGEMENT

DS - 001 - DUNKARD TWP

PLANS, MAPS, AND REPORTS

The water system does not have an Uninterrupted System Service Plan that contains all of the required elements. This will be a violation if the water system does not certify completion of the plan by the date applicable for the system's size outlined in Title 25 Pa. Code 109.708.

Remarks: A plan certification was due in August, but has not yet been received.

8 - SYSTEM MANAGEMENT

DS - 001 - DUNKARD TWP

PLANS, MAPS, AND REPORTS

The water system does not have an Operation and Maintenance Plan that contains all required elements.

Remarks: The plan was provided, but it does not have all the required elements as mentioned in the last Sanitary Survey.

D6E - 25 PA Code, Chapter 109.707

8 - SYSTEM MANAGEMENT

DS - 001 - DUNKARD TWP

PLANS, MAPS, AND REPORTS

The water system does not have an Emergency Response Plan that contains all required elements.

Remarks: The plan has not been updated since 2016 as evidenced by mentioning a PWS that no longer exists; this is a recurring issue as deficiencies were noted during the last Sanitary Survey.

Minor Deficiency

1B- SURFACE WATER SOURCES

SOURCE WATER PROTECTION

SRC - 001 - MONONGAHELA RIVER

The water system has not implemented any risk reduction measures in the Zone A or Zone B surface water intake protection areas.

Remarks: The SWPP states that regulations are adequate, and then only provides suggestions should some watershed protection group form.

1B- SURFACE WATER SOURCES

SOURCE WATER PROTECTION

SRC - 001 - MONONGAHELA RIVER

The water system does not interact with agencies and governmental bodies with jurisdiction or mutual interests within the watershed.

1B- SURFACE WATER SOURCES

TUS A-11-1_Attachment

PUMPHOUSE

SRC - 001 - MONONGAHELA RIVER

Source valves and/or meters are not maintained.

Remarks:The source meter has not been calibrated since 2012 when installed.

2A- TREATMENT PLANT

GENERAL INFORMATION

WTP - 300 - EAST DUNKARD TRT PLT

The treatment plant is not protected from unauthorized personnel.

Remarks:There is a gap in the back fence used for hoses and pumps, and there is not a lock on the hatch valves to clearwell #2.

2A- TREATMENT PLANT

GENERAL INFORMATION

WTP - 300 - EAST DUNKARD TRT PLT

The treatment plant is not clean and/or in good repair.

Remarks:The IFE turbidimeter electrical conduits are sitting in water and have rusted which has created a safety hazard. There is a gap in the back fence. Caustic soda has been spilled on the ground.

2A- TREATMENT PLANT

GENERAL INFORMATION

WTP - 300 - EAST DUNKARD TRT PLT

The treatment plant is used to store pesticides, fertilizers, petroleum products and/or yard maintenance equipment.

Remarks:There are: batteries, tire shine, foaming cleaner, oil, brake fluid, transmission fluid, gasoline, etc stored as well as various equipment.

2A- TREATMENT PLANT

GENERAL INFORMATION

WTP - 300 - EAST DUNKARD TRT PLT

Operational backup units are not available for all treatment processes, which does not meet the design standards set forth in the Public Water Supply Manual.

Remarks:There are old and uncleaned pumps in storage which may or may not function once cleaned.

2A- TREATMENT PLANT

TUS A-11-1_Attachment

GENERAL INFORMATION

WTP - 300 - EAST DUNKARD TRT PLT

The water system does not have a preventative maintenance program and/or no spare parts are available for critical treatment plant components.

Remarks:There is no preventative maintenance program.

2A- TREATMENT PLANT

GENERAL INFORMATION

WTP - 300 - EAST DUNKARD TRT PLT

The instrumentation measuring flow rates is not calibrated/functioning properly.

Remarks:The flow meters have not been calibrated since 2012.

2A- TREATMENT PLANT

GENERAL INFORMATION

WTP - 300 - EAST DUNKARD TRT PLT

Staff is not trained on how to use the SCADA or PLC system to maintain compliance

Remarks:The staff does not know how to utilize SCADA properly; this was mentioned in the last Sanitary Survey.

2A- TREATMENT PLANT

GENERAL INFORMATION

WTP - 300 - EAST DUNKARD TRT PLT

There is no SOP for process control decisions if the SCADA or PLC system is inoperable.

Remarks:There is no SOP.

2A- TREATMENT PLANT

CHEMICALS AND EQUIPMENT

WTP - 300 - EAST DUNKARD TRT PLT

Chemical container lids do not fit tightly, which does not meet the design standards set forth in the Public Water Supply Manual.

Remarks:The two DelPAC tanks, the orthophosphate drum in use, and the caustic drum does not have tightly covered lids.

2A- TREATMENT PLANT

TUS A-11-1_Attachment

CHEMICALS AND EQUIPMENT

WTP - 300 - EAST DUNKARD TRT PLT

Day tanks are not labeled to designate the chemical contained in them, which does not meet the design standards set forth in the Public Water Supply Manual.

Remarks:Currently only the bulk caustic tank is labeled.

2A- TREATMENT PLANT

CHEMICALS AND EQUIPMENT

WTP - 300 - EAST DUNKARD TRT PLT

There is scale buildup on the valves and injectors to the chemical feed pumps.

Remarks:The caustic and orthophosphate valves, injectors, and pumps have significant scale buildup.

2A- TREATMENT PLANT

CHEMICALS AND EQUIPMENT

WTP - 300 - EAST DUNKARD TRT PLT

There are no provisions made for measuring the quantities of chemicals used, which does not meet the design standards set forth in the Public Water Supply Manual.

Remarks:Quantities used each day are not measured.

2A- TREATMENT PLANT

GENERAL INFORMATION

WTP - 301 - WILLOW TREE BS

The water system does not have a preventative maintenance program and/or no spare parts are available for critical treatment plant components.

Remarks:The plant is not in use.

2A- TREATMENT PLANT

GENERAL INFORMATION

WTP - 301 - WILLOW TREE BS

The instrumentation measuring flow rates is not calibrated/functioning properly.

Remarks:The flow meters have not been calibrated since 2012 when installed.

2A- TREATMENT PLANT

TUS A-11-1_Attachment

GENERAL INFORMATION

WTP - 301 - WILLOW TREE BS

Cross-connection controls in the treatment plant are not inspected at least annually.

2A- TREATMENT PLANT

CHEMICALS AND EQUIPMENT

WTP - 301 - WILLOW TREE BS

Day tanks are not labeled to designate the chemical contained in them, which does not meet the design standards set forth in the Public Water Supply Manual.

Remarks:The chlorine day tanks are not labeled and do not appear to have been used.

2A- TREATMENT PLANT

CHEMICALS AND EQUIPMENT

WTP - 301 - WILLOW TREE BS

There is no chemical in the chemical day tank.

Remarks:The tanks appear to have never been used.

2B- CONVENTIONAL FILTRATION

PRETREATMENT

WTP - 300 - EAST DUNKARD TRT PLT

The raw water turbidimeter is not calibrated at least quarterly and/or according to manufacturer specified procedures.

Remarks:The raw water turbidimeter is calibrated annually.

2B- CONVENTIONAL FILTRATION

PRETREATMENT

WTP - 300 - EAST DUNKARD TRT PLT

The plant does not have a plant-specific strategy for determining an appropriate coagulant dosage.

Remarks:No jar test is utilized, the operator adjusts the coagulant based on the river turbidity.

There is also no chart or table available for use; this was mentioned in the last Sanitary Survey.

2B- CONVENTIONAL FILTRATION

TUS A-11-1_Attachment

FLOCCULATION

WTP - 300 - EAST DUNKARD TRT PLT

The date of the last flocculation basin influent flow meter calibration is not known, this information should be indicated on the plant's operating reports or maintenance records.

Remarks:The flow meter was last calibrated when installed.

2B- CONVENTIONAL FILTRATION**FLOCCULATION**

WTP - 300 - EAST DUNKARD TRT PLT

Visible floc particles are not forming within the flocculation units.

Remarks:There are no visible floc particles and there is a hole in the blanket. On the third day of the inspection the hole had moved.

2B- CONVENTIONAL FILTRATION**SEDEMENTATION/CLARIFICATION**

WTP - 300 - EAST DUNKARD TRT PLT

The date of the last sludge removal from the sedimentation basins is not known, this information should be indicated on the plant's operating reports or maintenance records.

Remarks:The last date of sludge removal is not known.

2B- CONVENTIONAL FILTRATION**SEDEMENTATION/CLARIFICATION**

WTP - 300 - EAST DUNKARD TRT PLT

There is plant life growing/fish swimming in the sedimentation basins.

Remarks:There are minnows in the clarifier and in filter #3.

2B- CONVENTIONAL FILTRATION**FILTRATION**

WTP - 300 - EAST DUNKARD TRT PLT

Flow is not evenly distributed among the filters and/or verified with calibrated flow meters.

Remarks:Flow is not evenly distributed.

2B- CONVENTIONAL FILTRATION

TUS A-11-1_Attachment

FILTRATION

WTP - 300 - EAST DUNKARD TRT PLT

There is no written standard operating procedure (SOP) outlining multiple criteria for determining when a filter backwash should occur.

Remarks:The SOP for backwashing the filters is insufficient.

2B- CONVENTIONAL FILTRATION

FILTRATION

WTP - 300 - EAST DUNKARD TRT PLT

The air scour utilized during the filter backwash is not even across the entire filter bed.

Remarks:The air scour is not even.

2B- CONVENTIONAL FILTRATION

FILTRATION

WTP - 300 - EAST DUNKARD TRT PLT

The backwash flow does not appear even across the entire filter bed.

Remarks:The backwash is not even.

2B- CONVENTIONAL FILTRATION

FILTRATION

WTP - 300 - EAST DUNKARD TRT PLT

Filter effluent flow rate meters are not calibrated and/or functioning properly.

Remarks:The meter has not been calibrated since 2012.

2B- CONVENTIONAL FILTRATION

FILTRATION

WTP - 300 - EAST DUNKARD TRT PLT

The interior of the clearwell has not been inspected by the water system within the last three years.

Remarks:The last inspection was in 2012.

2G- CHEMICAL ADDITION, CORROSION CONTROL, IRON AND MANGANESE TREATMENT AND
FLUORIDATION

CORROSION CONTROL

WTP - 300 - EAST DUNKARD TRT PLT

The water system does not adjust corrosion control treatment based on monitoring data.

2J- CHLORINE DISINFECTION

GASEOUS CHLORINE DISINFECTION CHEMICALS AND EQUIPMENT

WTP - 300 - EAST DUNKARD TRT PLT

There is no automatic chlorine leak detector with an alarm.

Remarks:There is no alarm; this was mentioned in the last Sanitary Survey.

2J- CHLORINE DISINFECTION

GASEOUS CHLORINE DISINFECTION CHEMICALS AND EQUIPMENT

WTP - 300 - EAST DUNKARD TRT PLT

There is no written SOP for chlorine gas cylinder change-out.

Remarks:There is no SOP.

2J- CHLORINE DISINFECTION

GASEOUS CHLORINE DISINFECTION CHEMICALS AND EQUIPMENT

WTP - 300 - EAST DUNKARD TRT PLT

A chlorine gas cylinder leak repair kit is not available, which does not meet the design standards set forth in the Public Water Supply Manual.

Remarks:If there is a leak, the PWS calls someone to repair the leak. There is no kit on location as mentioned in the last Sanitary Survey.

2J- CHLORINE DISINFECTION

CT INFORMATION

WTP - 300 - EAST DUNKARD TRT PLT

The instrumentation used for measuring pH and temperature is not calibrated and/or not functioning properly.

Remarks:While the instrument had been repaired and calibrated since Inspection ID# 3223868, the machine has broken again and the temperature readings are not currently sent to the plant.

2J- CHLORINE DISINFECTION

TUS A-11-1_Attachment

CT INFORMATION

WTP - 300 - EAST DUNKARD TRT PLT

Flow rate meters used to collect measurements needed to calculate log inactivation are not calibrated and/or functioning properly.

Remarks:As mentioned in Inspection ID# 3223868, there is no flow meter at the Griffin tank EP.

3- DISTRIBUTION SYSTEM

PURCHASED INTERCONNECTIONS

DS - 001 - DUNKARD TWP

Not all purchased interconnections have been exercised in accordance with the O&M plan.

Remarks:The interconnection with Carmichael's is not exercised.

3- DISTRIBUTION SYSTEM

PRESSURE ZONES

DS - 001 - DUNKARD TWP

The distribution main pressure is not monitored.

Remarks:The system pressure is only monitored at pump stations.

3- DISTRIBUTION SYSTEM

VALVES

DS - 001 - DUNKARD TWP

There are no written procedures for isolating portions of the system and repairing mains.

Remarks:This was mentioned in the last Sanitary Survey.

3- DISTRIBUTION SYSTEM

OPERATIONS

DS - 001 - DUNKARD TWP

The distribution system is not flushed.

Remarks:Portions of the distribution system are not flushed.

3- DISTRIBUTION SYSTEM

OPERATIONS

DS - 001 - DUNKARD TWP

The water system does not plan to loop dead ends.

4- WATER STORAGE

TUS A-11-1_Attachment

CHLORINE CONTACT OR PRESSURE TANK

ST - 001 - CLEARWELL #1

The chlorine contact tank does not have a sample tap at the tank's outlet to allow for sampling of the water leaving the tank.

Remarks:Clearwells #1 and #2 are in-line and the tap is in the outlet of #2.

4- WATER STORAGE

GENERAL GROUNDS

ST - 001 - CLEARWELL #1

The overflow discharges are not screened, which does not meet the design standards set forth in the Public Water Supply Manual.

Remarks:The overflow is not properly screened.

4- WATER STORAGE

STORAGE STRUCTURE

ST - 001 - CLEARWELL #1

The date of the last tank interior recoating is not known, this information should be indicated on the water system's operating reports or maintenance records.

4- WATER STORAGE

STORAGE STRUCTURE

ST - 001 - CLEARWELL #1

The exterior coating of the storage tank is peeled, cracked, rusted, covered in vegetation or in need of cleaning.

Remarks:The hatch is rusted and needs replaced.

4- WATER STORAGE

STORAGE STRUCTURE

ST - 001 - CLEARWELL #1

The manhole covers of the storage tank are not watertight and/or locked, which does not meet the design standards set forth in the Public Water Supply Manual.

Remarks:The indoor hatch is not watertight.

4- WATER STORAGE

TUS A-11-1_Attachment

STORAGE STRUCTURE

ST - 001 - CLEARWELL #1

The storage tank does not have sample taps at the tank's inlet and outlet to allow for sampling of water entering and leaving the tank.

Remarks:There is no tap at the outlet.

4- WATER STORAGE

GENERAL GROUNDS

ST - 002 - CLEARWELL #2

The grounds surrounding the storage tank are not secure from unauthorized access. The grounds surrounding the storage tank should be secured or monitored from unauthorized access.

Remarks:There is a gap in the back fence.

4- WATER STORAGE

STORAGE STRUCTURE

ST - 002 - CLEARWELL #2

The water system does not inspect the interior of the storage tank. AWWA Standard M42 recommends that storage tanks are cleaned and inspected once every three years.

Remarks:The interior has not been inspected since constructed in 2012.

4- WATER STORAGE

STORAGE STRUCTURE

ST - 002 - CLEARWELL #2

The date of the last tank interior recoating is not known, this information should be indicated on the water system's operating reports or maintenance records.

4- WATER STORAGE

STORAGE STRUCTURE

ST - 002 - CLEARWELL #2

The manhole covers of the storage tank are not watertight and/or locked, which does not meet the design standards set forth in the Public Water Supply Manual.

Remarks:The hatch does not have a seal.

4- WATER STORAGE

TUS A-11-1_Attachment

STORAGE STRUCTURE

ST - 002 - CLEARWELL #2

The storage tank does not have sample taps at the tank's inlet and outlet to allow for sampling of water entering and leaving the tank.

Remarks:Clearwells #1 and #2 are inline and have no taps between.

4- WATER STORAGE

STORAGE STRUCTURE

ST - 003 - GRIFFIN TANK

The date of the last tank interior recoating is not known, this information should be indicated on the water system's operating reports or maintenance records.

4- WATER STORAGE

STORAGE STRUCTURE

ST - 003 - GRIFFIN TANK

The storage tank does not have sample taps at the tank's inlet and outlet to allow for sampling of water entering and leaving the tank.

4- WATER STORAGE

STORAGE OPERATION

ST - 003 - GRIFFIN TANK

The Storage tank does not have the ability to be isolated without the loss of distribution system pressure which would require a public notice if the tank was taken out of service. This does not meet the design standards set forth in the Public Water Supply Manual.

Remarks:The pressure is essential for Bobtown.

4- WATER STORAGE

GENERAL GROUNDS

ST - 004 - BOBTOWN TANK

The ground around the tank is not graded to prevent ponding of surface water within 50 ft. This does not meet the design standards set forth in the Public Water Supply Manual.

Remarks:The tank is located at the toe of a cut slope and the area is not draining properly.

4- WATER STORAGE

TUS A-11-1_Attachment

STORAGE STRUCTURE

ST - 004 - BOBTOWN TANK

The date of the last tank interior recoating is not known, this information should be indicated on the water system's operating reports or maintenance records.

4- WATER STORAGE

STORAGE OPERATION

ST - 004 - BOBTOWN TANK

The Storage tank does not have the ability to be isolated without the loss of distribution system pressure which would require a public notice if the tank was taken out of service. This does not meet the design standards set forth in the Public Water Supply Manual.

Remarks:The pressure from the tank is essential for customers on the ridge.

4- WATER STORAGE

STORAGE STRUCTURE

ST - 005 - DONLEY TANK

The water system does not inspect the interior of the storage tank. AWWA Standard M42 recommends that storage tanks are cleaned and inspected once every three years.

Remarks:The interior of the tank has not been inspected since construction.

4- WATER STORAGE

STORAGE STRUCTURE

ST - 005 - DONLEY TANK

The date of the last tank interior recoating is not known, this information should be indicated on the water system's operating reports or maintenance records.

4- WATER STORAGE

STORAGE STRUCTURE

ST - 005 - DONLEY TANK

The exterior coating of the storage tank is peeled, cracked, rusted, covered in vegetation or in need of cleaning.

Remarks:The overflow pipe is rusted and needs maintained.

4- WATER STORAGE

TUS A-11-1_Attachment

STORAGE OPERATION

ST - 005 - DONLEY TANK

The Storage tank does not have the ability to be isolated without the loss of distribution system pressure which would require a public notice if the tank was taken out of service. This does not meet the design standards set forth in the Public Water Supply Manual.

Remarks:The tank pressure is essential for customers on the ridge.

4- WATER STORAGE

STORAGE STRUCTURE

ST - 006 - ABEL TANK

The date of the last tank interior recoating is not known, this information should be indicated on the water system's operating reports or maintenance records.

4- WATER STORAGE

STORAGE STRUCTURE

ST - 006 - ABEL TANK

The storage tank does not have sample taps at the tank's inlet and outlet to allow for sampling of water entering and leaving the tank.

Remarks:There are no taps.

4- WATER STORAGE

STORAGE OPERATION

ST - 006 - ABEL TANK

The Storage tank does not have the ability to be isolated without the loss of distribution system pressure which would require a public notice if the tank was taken out of service. This does not meet the design standards set forth in the Public Water Supply Manual.

Remarks:The tank pressure is essential for customers on the ridge.

4- WATER STORAGE

STORAGE STRUCTURE

ST - 007 - CLARK TANK

The water system does not inspect the interior of the storage tank. AWWA Standard M42 recommends that storage tanks are cleaned and inspected once every three years.

4- WATER STORAGE

TUS A-11-1_Attachment

STORAGE STRUCTURE

ST - 007 - CLARK TANK

The date of the last tank interior recoating is not known, this information should be indicated on the water system's operating reports or maintenance records.

4- WATER STORAGE

STORAGE STRUCTURE

ST - 007 - CLARK TANK

The storage tank does not have sample taps at the tank's inlet and outlet to allow for sampling of water entering and leaving the tank.

Remarks:There are no taps.

4- WATER STORAGE

STORAGE OPERATION

ST - 007 - CLARK TANK

The Storage tank does not have the ability to be isolated without the loss of distribution system pressure which would require a public notice if the tank was taken out of service. This does not meet the design standards set forth in the Public Water Supply Manual.

Remarks:The tank pressure is essential for customers on the ridge.

4- WATER STORAGE

STORAGE STRUCTURE

ST - 008 - SUGAR GROVE TANK

The water system does not inspect the interior of the storage tank. AWWA Standard M42 recommends that storage tanks are cleaned and inspected once every three years.

4- WATER STORAGE

STORAGE STRUCTURE

ST - 008 - SUGAR GROVE TANK

The date of the last tank interior recoating is not known, this information should be indicated on the water system's operating reports or maintenance records.

4- WATER STORAGE

TUS A-11-1_Attachment

STORAGE STRUCTURE

ST - 008 - SUGAR GROVE TANK

The storage tank does not have sample taps at the tank's inlet and outlet to allow for sampling of water entering and leaving the tank.

4- WATER STORAGE

STORAGE OPERATION

ST - 008 - SUGAR GROVE TANK

The Storage tank does not have the ability to be isolated without the loss of distribution system pressure which would require a public notice if the tank was taken out of service. This does not meet the design standards set forth in the Public Water Supply Manual.

4- WATER STORAGE

STORAGE STRUCTURE

ST - 011 - BALD HILL TANK

The water system does not inspect the interior of the storage tank. AWWA Standard M42 recommends that storage tanks are cleaned and inspected once every three years.

Remarks:The last inspection date is unknown.

4- WATER STORAGE

STORAGE STRUCTURE

ST - 011 - BALD HILL TANK

The date of the last tank interior recoating is not known, this information should be indicated on the water system's operating reports or maintenance records.

4- WATER STORAGE

STORAGE STRUCTURE

ST - 011 - BALD HILL TANK

The storage tank does not have sample taps at the tank's inlet and outlet to allow for sampling of water entering and leaving the tank.

Remarks:There are no taps.

4- WATER STORAGE

TUS A-11-1_Attachment

STORAGE OPERATION

ST - 011 - BALD HILL TANK

The Storage tank does not have the ability to be isolated without the loss of distribution system pressure which would require a public notice if the tank was taken out of service. This does not meet the design standards set forth in the Public Water Supply Manual.

Remarks:The pressure is needed to supply nearby customers.

4- WATER STORAGE

STORAGE STRUCTURE

ST - 012 - ALICIA TANK

The water system does not inspect the interior of the storage tank. AWWA Standard M42 recommends that storage tanks are cleaned and inspected once every three years.

4- WATER STORAGE

STORAGE STRUCTURE

ST - 012 - ALICIA TANK

The date of the last tank interior recoating is not known, this information should be indicated on the water system's operating reports or maintenance records.

4- WATER STORAGE

STORAGE STRUCTURE

ST - 012 - ALICIA TANK

The storage tank does not have sample taps at the tank's inlet and outlet to allow for sampling of water entering and leaving the tank.

Remarks:There are no taps.

4- WATER STORAGE

STORAGE OPERATION

ST - 012 - ALICIA TANK

The Storage tank does not have the ability to be isolated without the loss of distribution system pressure which would require a public notice if the tank was taken out of service. This does not meet the design standards set forth in the Public Water Supply Manual.

Remarks:The pressure is needed to service nearby customers.

4- WATER STORAGE

TUS A-11-1_Attachment

STORAGE STRUCTURE

ST - 013 - NEW CLARK TANK

The water system does not inspect the interior of the storage tank. AWWA Standard M42 recommends that storage tanks are cleaned and inspected once every three years.

Remarks:The tank has not been inspected since constructed.

4- WATER STORAGE

STORAGE STRUCTURE

ST - 013 - NEW CLARK TANK

The date of the last tank interior recoating is not known, this information should be indicated on the water system's operating reports or maintenance records.

4- WATER STORAGE

STORAGE STRUCTURE

ST - 013 - NEW CLARK TANK

The storage tank does not have sample taps at the tank's inlet and outlet to allow for sampling of water entering and leaving the tank.

Remarks:There are no taps.

4- WATER STORAGE

STORAGE OPERATION

ST - 013 - NEW CLARK TANK

The Storage tank does not have the ability to be isolated without the loss of distribution system pressure which would require a public notice if the tank was taken out of service. This does not meet the design standards set forth in the Public Water Supply Manual.

Remarks:The pressure is needed to service nearby customers.

4- WATER STORAGE

STORAGE STRUCTURE

ST - 014 - NEW SUGAR GROVE TANK

The water system does not inspect the interior of the storage tank. AWWA Standard M42 recommends that storage tanks are cleaned and inspected once every three years.

Remarks:The tank has not been inspected since constructed.

4- WATER STORAGE

TUS A-11-1_Attachment

STORAGE STRUCTURE

ST - 014 - NEW SUGAR GROVE TANK

The date of the last tank interior recoating is not known, this information should be indicated on the water system's operating reports or maintenance records.

4- WATER STORAGE

STORAGE STRUCTURE

ST - 014 - NEW SUGAR GROVE TANK

The storage tank does not have sample taps at the tank's inlet and outlet to allow for sampling of water entering and leaving the tank.

Remarks:There are no taps.

4- WATER STORAGE

STORAGE OPERATION

ST - 014 - NEW SUGAR GROVE TANK

The Storage tank does not have the ability to be isolated without the loss of distribution system pressure which would require a public notice if the tank was taken out of service. This does not meet the design standards set forth in the Public Water Supply Manual.

Remarks:The pressure is needed to service nearby customers.

5- PUMPS AND CONTROLS

PUMPING EQUIPMENT

PST - 001 - PLANT LOW SERVICE

Pump station gate valves are not exercised to ensure proper operation.

Remarks:The gates are not exercised.

5- PUMPS AND CONTROLS

PUMPING EQUIPMENT

PST - 002 - PLANT HIGH SERVICE

There is not an air release valve between the source and check valve where the vertical turbine motor-driven pump is being used.

Remarks:There is no air release valve.

5- PUMPS AND CONTROLS

TUS A-11-1_Attachment

PUMPING EQUIPMENT

PST - 002 - PLANT HIGH SERVICE

Pump station gate valves are not exercised to ensure proper operation.

Remarks:The gates are not exercised.

5- PUMPS AND CONTROLS

PUMPING EQUIPMENT

PST - 003 - ROCKY HOLLOW PS

There is not an air release valve between the source and check valve where the vertical turbine motor-driven pump is being used.

Remarks:There is no air release valve.

5- PUMPS AND CONTROLS

PUMPING EQUIPMENT

PST - 003 - ROCKY HOLLOW PS

Pump station gate valves are not exercised to ensure proper operation.

Remarks:The gates are not getting exercised.

5- PUMPS AND CONTROLS

AUXILIARY POWER

PST - 003 - ROCKY HOLLOW PS

The auxiliary power generator is not exercised and tested.

Remarks:The generator is not tested regularly.

5- PUMPS AND CONTROLS

PUMPING EQUIPMENT

PST - 004 - DAVISTOWN PS

The pumping station is leaking water in addition to the necessary constant drip through the pump gland.

Remarks:Pump two is leaking. A hose near the flow meter is also leaking.

5- PUMPS AND CONTROLS

TUS A-11-1_Attachment

PUMPING EQUIPMENT

PST - 004 - DAVISTOWN PS

There is not an air release valve between the source and check valve where the vertical turbine motor-driven pump is being used.

Remarks:There is no air release.

5- PUMPS AND CONTROLS

AUXILIARY POWER

PST - 004 - DAVISTOWN PS

The auxiliary power generator is not exercised and tested.

5- PUMPS AND CONTROLS

OPERATION AND MAINTENANCE

PST - 004 - DAVISTOWN PS

There are not spare pump parts or a replacement pump of proper capacity on site. This does not meet the design standards set forth in the Public Water Supply Manual.

5- PUMPS AND CONTROLS

PUMPING EQUIPMENT

PST - 005 - BALD HILL PS

The pumping station is not equipped with a check valve. This does not meet the design standards set forth in the Public Water Supply Manual.

Remarks:While Justin stated that the valve can be heard, we could not find one. It's possible the valve is underneath the station.

5- PUMPS AND CONTROLS

CONTROLS AND ALARMS

PST - 005 - BALD HILL PS

A pump failure alarm system is not present, which does not meet the design standards set forth in the Public Water Supply Manual.

5- PUMPS AND CONTROLS

TUS A-11-1_Attachment

OPERATION AND MAINTENANCE

PST - 005 - BALD HILL PS

There are not spare pump parts or a replacement pump of proper capacity on site. This does not meet the design standards set forth in the Public Water Supply Manual.

Remarks:Contract

5- PUMPS AND CONTROLS

PUMPING EQUIPMENT

PST - 006 - WILLOW TREE PS

There is not an air release valve between the source and check valve where the vertical turbine motor-driven pump is being used.

Remarks:There is no air release valve.

5- PUMPS AND CONTROLS

AUXILIARY POWER

PST - 006 - WILLOW TREE PS

The auxiliary power generator is not exercised and tested.

5- PUMPS AND CONTROLS

PUMPING STATION

PST - 007 - CLARK TANK PS

The pumping station is not kept clean, orderly, and in good repair.

Remarks:The old and unused pressure tank needs removed from the pit.

5- PUMPS AND CONTROLS

PUMPING EQUIPMENT

PST - 007 - CLARK TANK PS

The pumping station is not equipped with a check valve. This does not meet the design standards set forth in the Public Water Supply Manual.

Remarks:A check valve is not present.

5- PUMPS AND CONTROLS

TUS A-11-1_Attachment

OPERATION AND MAINTENANCE

PST - 007 - CLARK TANK PS

There are not spare pump parts or a replacement pump of proper capacity on site. This does not meet the design standards set forth in the Public Water Supply Manual.

Remarks:Work is contracted

6- MONITORING AND REPORTING

GENERAL MONITORING & REPORTING

DS - 001 - DUNKARD TWP

The water system failed to notify DEP within 1-hour of determining that a non-imminent threat situation existed at least once in the past three years.

Remarks:Failure to notify the Department regarding turbidity exceedances.

6- MONITORING AND REPORTING

ACCREDITATION-BY-RULE

DS - 001 - DUNKARD TWP

The water system did not collect grab samples for turbidity and/or chlorine residual (as applicable) every four hours during periods of continuous monitoring equipment failure.

Remarks:As mentioned in Inspection ID# 3223868.

6- MONITORING AND REPORTING

ACCREDITATION-BY-RULE

DS - 001 - DUNKARD TWP

The analysts and instruments used for accreditation-by-rule compliance monitoring do not follow EPA approved methods.

Remarks:Online units have been calibrated, but offline units have not been properly calibrated.

6- MONITORING AND REPORTING

ACCREDITATION-BY-RULE

DS - 001 - DUNKARD TWP

The water system does not consider all recorded combined filter effluent and individual filter effluent turbidity readings when completing their monthly reports for DEP, which is a failure to accurately report data.

Remarks:There are no legitimate CFE readings.

6- MONITORING AND REPORTING

TUS A-11-1_Attachment

METHOD 334.0

DS - 001 - DUNKARD TWP

There is no documentation for the most recent 12 months to demonstrate that routine weekly comparative grab sampling analysis has been completed in accordance with EPA Method 334.0 for each on-line instrument used for analysis of chlorine for compliance monitoring or to obtain results needed to calculate log inactivation.

Remarks:As mentioned in the last Sanitary Survey.

6- MONITORING AND REPORTING

METHOD 334.0

DS - 001 - DUNKARD TWP

There is no documentation for the most recent 12 months to demonstrate that, when available from the manufacturer, secondary standards have been used in accordance with EPA Method 334.0 to verify each handheld or benchtop instrument used for analysis of chlorine for compliance monitoring, comparison gram samples or to obtain results needed to calculate log inactivation.

Remarks:As mentioned in the last Sanitary Survey.

6- MONITORING AND REPORTING

METHOD 334.0

DS - 001 - DUNKARD TWP

Operators do not change the on-line chlorine analyzer tubing at a frequency in accordance with the manufacturer's specifications.

Remarks:The tubing from the colorimeter in the plant lab is heavily stained.

6- MONITORING AND REPORTING

METHOD 334.0

DS - 001 - DUNKARD TWP

There are no cross-connection controls in place between the on-line chlorine analyzer waste line and the drain.

Remarks:There is an air break, but not an air gap.

6- MONITORING AND REPORTING

TUS A-11-1_Attachment

COMPLIANCE MONITORING: ENTRY POINT SAMPLING

DS - 001 - DUNKARD TWP

Each entry point tap is not labeled.

Remarks:The entry point is not labeled.

8- SYSTEM MANAGEMENT

FINANCIAL & ASSET MANAGEMENT

DS - 001 - DUNKARD TWP

The water system does not prepare an annual capital budget.

8- SYSTEM MANAGEMENT

FINANCIAL & ASSET MANAGEMENT

DS - 001 - DUNKARD TWP

In the most recent fiscal year, system operating costs exceeded revenues.

8- SYSTEM MANAGEMENT

FINANCIAL & ASSET MANAGEMENT

DS - 001 - DUNKARD TWP

The water system does not have an Asset Management Plan.

Remarks:As mentioned in the last Sanitary Survey.

8- SYSTEM MANAGEMENT

GENERAL MANAGEMENT

DS - 001 - DUNKARD TWP

Sources, treatment plants, storage facilities, and/or pump stations are not visited by staff at least weekly.

Remarks:The storage facilities and pump stations are not visited weekly.

8- SYSTEM MANAGEMENT

GENERAL MANAGEMENT

DS - 001 - DUNKARD TWP

The water system management personnel do not provide for continuity of operations under all circumstances including but not limited to employee illness, vacations, weather events, and/or natural disasters.

Remarks:The PWS does not provide for continuity of service and is not properly staffed.

8- SYSTEM MANAGEMENT

TUS A-11-1_Attachment

GENERAL MANAGEMENT

DS - 001 - DUNKARD TWP

The water system does not conduct an evaluation of the water system annually.

8- SYSTEM MANAGEMENT

ALARMS & SHUTDOWNS

DS - 001 - DUNKARD TWP

The alarm and shutdown capabilities are not tested quarterly.

Remarks:While recently tested, the alarms are not yet tested quarterly.

8- SYSTEM MANAGEMENT

ALARMS & SHUTDOWNS

DS - 001 - DUNKARD TWP

Since the last sanitary survey, the water system failed to notify DEP as soon as possible following any failures of alarm and shutdown capabilities that could not be corrected within 24 hrs.

8- SYSTEM MANAGEMENT

FILTRATION RECORDS

DS - 001 - DUNKARD TWP

The water system is failing to maintain records relating to the implementation of their filter bed evaluation program.

Remarks:As mentioned in Inspection ID# 3223868, no filter bed evaluation program has been implemented.

8- SYSTEM MANAGEMENT

PLANS, MAPS, AND REPORTS

DS - 001 - DUNKARD TWP

The water system has a DEP-approved Source Water Protection Program and is not submitting the annual update report.

Remarks:The plan has not been updated since 2002.

8- SYSTEM MANAGEMENT

TUS A-11-1_Attachment

PLANS, MAPS, AND REPORTS

DS - 001 - DUNKARD TWP

The water system does not prepare and/or maintain a monthly operational report that contains all required elements.

Remarks:The Department requests indefinite MORs beginning for the month of September to be sent to ernorman@pa.gov.

8- SYSTEM MANAGEMENT

RECORD MANAGEMENT

DS - 001 - DUNKARD TWP

There are no computer security measures in place to protect the water system from unauthorized access both internally and from cyber attacks.

Remarks:As mentioned in the last Sanitary Survey.

8- SYSTEM MANAGEMENT

RECORD MANAGEMENT

DS - 001 - DUNKARD TWP

The water system is not maintaining facility records relating to the lead and copper rule.

Remarks:The Materials Evaluation is not complete.

CERTIFIED OPERATOR OVERVIEW

The names and/or contact information of the available operators are not posted in the treatment plant.

Remarks:The Department recommends updating the available operator posting in the plant.

CERTIFIED OPERATOR OVERVIEW

A copy of the available operators' certificate(s) are not displayed at the water system.

Remarks:The Department recommends updating the available operator posting in the plant.

COMMAND AND CONTROL

Not all process control decisions are made by an available operator or through use of SOPs

Remarks:There are several missing and/or inadequate SOPs.

OPERATOR RESPONSIBILITIES

The actions and/or inactions of the operator(s) led to the water system being out of compliance.

Remarks:A general lack of maintenance and failure to report to the Department has lead to myriad compliance issues.

General Comments

A full Sanitary Survey is taking place on August 30 and 31, and September 2, 7, and 9 in response to issues discovered during a recent FPPE and a power outage. Patty Miller, Zach Bell, and John Thomas assisted during the inspection.

While mentioned in this inspection due to a technicality, operator Timothy Faddis was not added to the system as a circuit rider until September 8, 2021 in response to the exit of the previous and long-standing operator, Jim Holbert.

During the inspection, the PWS was applying for permits to get the sludge pond and clarifier cleaned. Once the clarifier is cleaned, the new mixing unit can be installed. Additionally, the Griffin tank chlorine analyzer was repaired, but then realized only two of the three relay circuits were functioning. The PWS is waiting on the third circuit to arrive.

The issue with the sludge pond was discussed in detail during the inspection. The PWS was instructed to contact the Clean Water permitting group in response to increasing the elevation on the pond riser as a temporary fix, and for any other questions.

The Clark pump station is mentioned in this inspection. However, this is a mistake in our program. The station is actually at the Bobtown tank in the same pit at the tank valves. There is also a pressure tank in good condition associated with the pump.

Additionally, there is a Beal's pump station and pressure tank not listed in the modules for this inspection. The pump station is in disrepair and is in need of a viable lid which a lock. The pressure tank in the pit is in good condition. The Laurel Run pump station and pressure tank are also not listed. The pump and pressure tank are in good condition, but there is a hose from a tap on the pressure tank which extends down the floor drain. The hose will need to be removed.

Signatures

Received by(Print Name): LARRY VINCIES	Unable To Receive Signature: Finished offsite
Investigator (Print Name): ERIC NORMAN	

WATER SUPPLY INSPECTION REPORT

Facility Name EAST DUNKARD WATER AUTHORITY	PWSID No 5300012	Inspection Date 2021-10-28
Facility Location ROUTE 88 DILLINER PA 15327	County Greene	Municipality Cumberland
Responsible Officials Name HOLBERT,MGR JAMES	Telephone: (724) 943-3713	
	SystemType: Community	Population: 4200
Certified Operator name ----	Field Order Number: ----	
	Issue Date(mm/dd/yy): ----	

eFACTS info

Inspection ID: 3273363

Inspection Type: ADMIN

Violations

D2I - 25 PA Code, Chapter 109.708

-

DS - 001 - DUNKARD TWP

Remarks: FAILURE TO CERTIFY COMPLETION OF AN UNINTERRUPTED SYSTEM SERVICE PLAN

General Comments

Please submit a USSP Certification Form to the Department by November 30, 2021.

Received by(Print Name):

Unable To Receive Signature:

Completed offsite

Investigator (Print Name):

ERIC NORMAN

WATER SUPPLY INSPECTION REPORT

Facility Name EAST DUNKARD WATER AUTHORITY	PWSID No 5300012	Inspection Date 2021-12-23
Facility Location ROUTE 88 DILLINER PA 15327	County Greene	Municipality Cumberland
Responsible Officials Name VINCIES LARRY	Telephone: (724) 943-3713	
	SystemType: Community	Population: 4200
Certified Operator name FADDIS TIMOTHY C	Field Order Number: ----	
	Issue Date(mm/dd/yy): ----	

Person(s) Interviewed

Name: STEVE LOWTHER

Title:

Name: JUSTIN ROBINSON

Title: LABORER

eFACTS info

Inspection ID: 3299476

Inspection Type: ADMIN

Minor Deficiency

3- DISTRIBUTION SYSTEM

PLANNED SERVICE INTERRUPTIONS AND MAIN BREAKS

DS - 001 - DUNKARD TWP

A Class E certified operator is not on-site of all main breaks and/or a Class E certified operator is not contacted from the site to assess a high risk of contamination or evidence of contamination.

Remarks: There has not been a Class E certified operator onsite or consulted during main breaks since the previous operator, Jim, left the position.

On December 3, 2021 the Department received information regarding a recent main break within the EDWA distribution system. Upon speaking with the system, a main break and service line break were confirmed. Additionally, it was confirmed that a Class E certified operator has not been present, or consulted with, during main breaks to determine contamination or risk of contamination since the previous operator left the employ of EDWA.

The Department recommends having a Class E certified operator on location during main breaks. If a Class E certified operator is not available, the Department recommends repair crews conduct work and evaluate conditions according to an SOP written by a Class E certified operator, and then converse with a Class E certified operator over the phone to approve the decisions made by repair crews per via SOP.

Signatures

Received by(Print Name):

STEVE LOWTHER

Unable To Receive Signature:

Completed offsite

Investigator (Print Name):

ERIC NORMAN

WATER SUPPLY INSPECTION REPORT

Facility Name EAST DUNKARD WATER AUTHORITY	PWSID No 5300012	Inspection Date 2022-01-19
Facility Location ROUTE 88 DILLINER PA 15327	County Greene	Municipality Cumberland
Responsible Officials Name VINCIES LARRY	Telephone: (724) 943-3713	
	SystemType: Community	Population: 4200
Certified Operator name FADDIS TIMOTHY C	Field Order Number: ----	
	Issue Date(mm/dd/yy): ----	

Person(s) Interviewed

Name: TIM FADDIS	Title: OPERATOR
Name: STEVE LOWTHER	Title: OPERATOR
Name: SAM CARROLL	Title: ENGINEER
Name: TRACY PEKAR	Title: VICECHAIR
Name: JUSTIN ROBINSON	Title: WORKER

eFACTS info

Inspection ID: 3310030	Inspection Type: RTPT

B6E - 25 PA Code, Chapter 109.703(c)

8 - SYSTEM MANAGEMENT

DS - 001 - DUNKARD TWP

ALARMS & SHUTDOWNS

B6e: The water system is chronically failing to test alarm and shutdown capabilities, which is a violation of Title 25 Pa. Code 109.703(c)

Remarks: The alarms and shutdowns were not tested in 4th quarter of 2021.

C1A - 25 PA Code, Chapter 109.602

2A - TREATMENT PLANT

WTP - 300 - EAST DUNKARD TRT PLT

GENERAL INFORMATION

Appropriate safety equipment is not provided in the treatment plant, which does not meet the design standards set forth in the Public Water Supply Manual.

Remarks: As an update, an SCBA was found on location. However, the age of the equipment and last date of inspection is unknown. The location of additional cartridges for the face mask remain unknown.

C1A - 25 PA Code, Chapter 109.602

2A - TREATMENT PLANT

WTP - 300 - EAST DUNKARD TRT PLT

CHEMICALS AND EQUIPMENT

The chemical storage tanks do not have secondary containment sufficient to hold the volume of 110% of the largest tank to prevent accidental discharge in the event of a spill or overflow. This does not meet the design standards set forth in the Public Water Supply Manual.

Remarks: Secondary containment has not yet been addressed on DelPAC, ortho drums, and caustic soda.

2J - CHLORINE DISINFECTION

WTP - 300 - EAST DUNKARD TRT PLT

GASEOUS CHLORINE DISINFECTION CHEMICALS AND EQUIPMENT

There is not a working exhaust fan in the chlorine room that pulls air from near the floor, which does not meet the design standards set forth in the Public Water Supply Manual.

Remarks: The fan, which gets stuck and does not reliably function, has not yet been repaired or replaced and remains corroded.

C1A - 25 PA Code, Chapter 109.602

4 - WATER STORAGE

ST - 002 - CLEARWELL #2

GENERAL GROUNDS

The overflow discharges are not screened, which does not meet the design standards set forth in the Public Water Supply Manual.

Remarks: The overflow from the clearwell has not yet been properly screened.

C1A - 25 PA Code, Chapter 109.602

8 - SYSTEM MANAGEMENT

DS - 001 - DUNKARD TWP

ALARMS & SHUTDOWNS

The filter plant is not staffed continuously while the plant is operating and is not equipped with shutdown capabilities; which does not meet the design standards set forth in the Public Water Supply Manual.

Remarks: The plant has automatic shutdown of the service pumps; however, this is not the correct location for any of the parameters.

C1F - 25 PA Code, Chapter 109.608

2A - TREATMENT PLANT

WTP - 300 - EAST DUNKARD TRT PLT

GENERAL INFORMATION

Cross-connection controls are not in place between potable and nonpotable water in the treatment plant.

Remarks: Hoses remain on the ground.

2B - CONVENTIONAL FILTRATION

WTP - 300 - EAST DUNKARD TRT PLT

FILTRATION

CFE turbidity measurements are not continuously monitored and/or recorded at least every 15 minutes.

Remarks: The CFE remains located inside the clearwell and after chemical addition.

C2B - 25 PA Code, Chapter 109.304(a)**6 - MONITORING AND REPORTING**

DS - 001 - DUNKARD TWP

METHOD 334.0

There is no documentation to demonstrate that each individual that conducts analysis of chlorine for compliance monitoring or comparison grab samples at the water system has completed the analyst IDC in accordance with EPA Method 334.0.

C2B - 25 PA Code, Chapter 109.304(a)**6 - MONITORING AND REPORTING**

DS - 001 - DUNKARD TWP

METHOD 334.0

There is no documentation to demonstrate that the initial calibration verification has been completed in accordance with EPA Method 334.0 for each handheld or benchtop instrument used for analysis of chlorine for compliance monitoring, comparison grab samples or to obtain results needed to calculate log inactivation.

C2B - 25 PA Code, Chapter 109.304(a)**6 - MONITORING AND REPORTING**

DS - 001 - DUNKARD TWP

METHOD 334.0

There is no documentation to demonstrate that each on-line instrument used for analysis of chlorine for compliance monitoring or to obtain results needed to calculate log inactivation has passed the instrument IDC in accordance with EPA Method 334.0.

6 - MONITORING AND REPORTING

DS - 001 - DUNKARD TWP

METHOD 334.0

There is no documentation for the most recent 12 months to demonstrate that routine quarterly calibration verifications have been completed in accordance with EPA Method 334.0 for each handheld or benchtop instrument used for analysis of chlorine to compliance monitoring, comparison grab samples or to obtain results needed to calculate log inactivation.

C2B - 25 PA Code, Chapter 109.304(a)**6 - MONITORING AND REPORTING**

DS - 001 - DUNKARD TWP

METHOD 334.0

There is no documentation for the most recent 12 months to demonstrate that routine weekly comparative grab sampling analysis has been completed in accordance with EPA Method 334.0 for each on-line instrument used for analysis of chlorine for compliance monitoring or to obtain results needed to calculate log inactivation.

C2C - 25 PA Code, Chapter 109.304(c)**6 - MONITORING AND REPORTING**

DS - 001 - DUNKARD TWP

ACCREDITATION-BY-RULE

Accreditation-by-rule parameters are not analyzed by an accredited lab, an appropriately certified operator or an individual following an SOP written by an appropriately certified operator.

Remarks: SOPs have not yet been provided by a certified operator.

C3D - 25 PA Code, Chapter 109.703(b)**2B - CONVENTIONAL FILTRATION**

WTP - 300 - EAST DUNKARD TRT PLT

FILTRATION

Following a backwash, operators do not filter-to-waste for one full filter volume and until turbidity levels are less than 0.30 NTU, or if using an alternate technique until the post-backwash turbidity spike is less than 0.15 NTU.

2B - CONVENTIONAL FILTRATION

WTP - 300 - EAST DUNKARD TRT PLT
FILTRATION

The water system does not implement a filter bed evaluation that is acceptable to the Department.

Remarks: As of January 18, 2022 a filter bed evaluation plan has not been implemented.

C4A - 25 PA Code, Chapter 109.4**2B - CONVENTIONAL FILTRATION**

WTP - 300 - EAST DUNKARD TRT PLT
FLOCCULATION

The mechanical equipment for the mixers within the flocculation basins is not functioning properly.

Remarks: The equipment is not currently functioning.

C4A - 25 PA Code, Chapter 109.4**2B - CONVENTIONAL FILTRATION**

WTP - 300 - EAST DUNKARD TRT PLT
SEDEMENTATION/CLARIFICATION

The sedimentation basins are not cleaned frequently enough to prevent excessive sludge buildup and water short circuiting.

Remarks: Short-circuiting is likely occurring.

C4A - 25 PA Code, Chapter 109.4**2B - CONVENTIONAL FILTRATION**

WTP - 300 - EAST DUNKARD TRT PLT
SEDEMENTATION/CLARIFICATION

The sludge blanket in the upflow-solids-contact clarifier does not remain in suspension or there is not enough freeboard to prevent the top of the blanket from reaching the bottom of the effluent troughs.

2B - CONVENTIONAL FILTRATION

WTP - 300 - EAST DUNKARD TRT PLT

WASTE HANDLING

A lack of waste-holding capacity is preventing operators from backwashing filters when needed.

Remarks: Despite the recent addition of a riser, the sludge pond again appears full to the top of the riser.

C4A - 25 PA Code, Chapter 109.4

4 - WATER STORAGE

ST - 001 - CLEARWELL #1

STORAGE STRUCTURE

The water system does not inspect the interior of the storage tank. AWWA Standard M42 recommends that storage tanks are cleaned and inspected once every three years.

Remarks: The clearwell has not yet been inspected.

D3 - 25 PA Code, Chapter 109.701(i)

6 - MONITORING AND REPORTING

DS - 001 - DUNKARD TWP

GENERAL MONITORING & REPORTING

The water system failed to ensure that all data reported to the Department accurately represents test results.

Remarks: As of January 18, 2022, the system is not accurately reporting hours of operation.

Minor Deficiency

2B- CONVENTIONAL FILTRATION

FILTRATION

WTP - 300 - EAST DUNKARD TRT PLT

There is no written standard operating procedure (SOP) outlining multiple criteria for determining when a filter backwash should occur.

2J- CHLORINE DISINFECTION

GASEOUS CHLORINE DISINFECTION CHEMICALS AND EQUIPMENT

WTP - 300 - EAST DUNKARD TRT PLT

There is no automatic chlorine leak detector with an alarm.

A routine partial inspection is occurring on Tuesday, January 18, 2022 as a follow-up to Inspections # 3223868, 3225290, 3235660, and 3252679. Specifically, the purpose of the inspection is to track progress on violations and significant deficiencies noted in said inspections. Tracy Pekar, an East Dunkard Water Authority (Authority) board member, Justin Robinson, a representative of the Authority, and Sam Carroll, a representative of Harshman CE Group are present for the inspection. Tim Faddis and Steve Lowther are also present. Only portions of the treatment plant and nearby facilities are being inspected. A backwash is not being observed during the inspection.

As noted in a recent e-mail, the Authority may not have a licensed, certified operator as of January 28, 2022. As expressed by the Department during the inspection, the Authority must have an appropriately licensed, certified operator. A list of operators has been supplied to the Authority.

While one collar has been added to the riser in the sludge pond, it would appear that the additional space once afforded by adding the collar is now gone and the pond is again full. According to Justin, the sludge in the clarifier encroached upon the weir so the sludge had to be removed which refilled the sludge pond. According to Tim, the addition of a second collar was approved along with the first, but has yet to be installed.

According to the Authority's engineer, the company contracted to clean the sludge pond has bumped the timeframe to March of 2022. The Authority is currently attempting to get a contact to solidify the timeframe.

At the time of inspection, finished water is continuously discharging from the clearwell overflow into the sludge pond, while the sludge pond is continuously discharging into the river. Once the high-service pumps shut down, the plant continues to produce water for an indeterminate amount of time due to a broken valve on the settled-water line from the clarifier to the filters; the valve has been broken for several years. Since the valve does not close, gravity feeds the top several inches from the clarifier to the filters, which in turn feeds water to the clearwell. Unfortunately, the clearwell cannot take all of the additional volume which leads to finished water discharging into the sludge pond. It is the understanding of the Department that the discharge occurs multiple times a day, every day that the plant produces water. Additionally, while the overflow pipe has been raised, the opening is still not properly screened.

The clarifier has not yet been cleaned. According to the Authority, the time needed to clean the clarifier and repair the mixing/rake arm device will exceed the time the finished water volume in tanks can provide adequate pressure to the customers. While the Department understands the situation, we request looking into alternatives.

Recently discovered by the Department, the Authority has an approximate water loss of 65% in volume be-

tween the finished water leaving the high-service pumps and what is being caught by meters; this is after 11 of the 12 known leaks have been repaired and does not include the finished water being dumped into the sludge pond. All bulk meters have been determined to be functioning properly, but individual meters are not regularly inspected or repaired. For the last month, the Authority has been investigating possible computational issues between billing and metering softwares as an explanation for at least a portion of the loss. Currently, however, the Authority is not actively conducting leak detection on the distribution system as a whole or as individual pressure zones to at least narrow the search. The Department recommends performing leak detection on the distribution system, and ascertaining the accuracy of at least a subset of individual meters.

While not inspected, it has been confirmed that no actions have yet taken place to rectify violations against tanks or pump stations. Also, any the deficient plan sets have yet to be updated, and the system has not yet developed a USSP.

In addition to the violations noted, and those outstanding that are not being inspected here, the following significant deficiencies remain unaddressed:

- the system failed to provide filter-to-waste for a full filter volume after backwashes and filter start-up or obtain approval for an alternate method and failed to provide a filter bed evaluation program. Additionally, the system had turbidity spikes in July 2021 with no identifiable cause, and numerous turbidity spikes on both CFE and IFE during the past 12 months which reached the set limits of the recording equipment.
- the system failed to utilize EPA Method 334.
- the system chronically fails to accurately report hours of operation.
- the water system failed to comply with an Order issued by the Department; the water system violated Field Order #53-21-1627-022 for failure to provide entry point chlorine for August 20-23, 2021, for not including "any relevant factors or events which affect sample results, such as backwashes or calibrations...clearly indicated on these data submissions;" for operating without personnel prior to alarm verification; and for not providing SOPs for Tier 1 Public Notices and 1-hour notifications.
- there is a significant lack of waste-holding capacity, there are mudballs forming in the media, the media does not restratify properly, the CFE is in the wrong location, and the backwashing SOP is insufficient.
- there is no reliable fan in the chlorine gas room, there is not a sufficient SCBA, the location of additional cartridges for the face mask is unknown, an SOP for changing chlorine cylinders is absent.

Received by(Print Name):

Unable To Receive Signature:

Completed offsite

Investigator (Print Name):

ERIC NORMAN

WATER SUPPLY INSPECTION REPORT

Facility Name EAST DUNKARD WATER AUTHORITY	PWSID No 5300012	Inspection Date 2022-01-25
Facility Location ROUTE 88 DILLINER PA 15327	County Greene	Municipality Cumberland
Responsible Officials Name DORSEY JERRY	Telephone: (724) 943-3713	
	SystemType: Community	Population: 4200
Certified Operator name FADDIS TIMOTHY C	Field Order Number: ----	
	Issue Date(mm/dd/yy): ----	

Person(s) Interviewed

Name: STEVE LOWTHER	Title: OPERATOR
Name: JUSTIN ROBINSON	Title: WORKER
Name: TRACY PEKAR	Title: VICECHAIR
Name: WALTER	Title: WORKER

eFACTS info

Inspection ID: 3312572	Inspection Type: RTPT

A1 - 25 PA Code, Chapter 109.4

2B - CONVENTIONAL FILTRATION

WTP - 300 - EAST DUNKARD TRT PLT

OTHER SIGNIFICANT DEFICIENCIES

A1: Circumstances exist with the conventional filtration treatment that adversely affect the quantity or quality of the water being produced, which is a violation of Title 25 Pa. Code 109.4.

A2B - 25 PA Code, Chapter 109.202(c)

2J - CHLORINE DISINFECTION

WTP - 300 - EAST DUNKARD TRT PLT

CT INFORMATION

A2b: The water system is failing to provide at least 1.0 log inactivation of Giardia for more than 4 hours at the entry point. This is a failure or significant interruption in a pathogenic treatment technique, which is a violation of Title 25 Pa. Code 109.202(c).

A3 - 25 PA Code, Chapter 109.701(a)(3)

2B - CONVENTIONAL FILTRATION

WTP - 300 - EAST DUNKARD TRT PLT

OTHER SIGNIFICANT DEFICIENCIES

A3: The public water supplier failed to provide 1-hour notification to DEP informing them of an imminent threat situation that is occurring with the conventional filtration treatment. This is a violation of Title 25 Pa. Code 109.701(a)(3).

Minor Deficiency

2B- CONVENTIONAL FILTRATION

SEDEMENTATION/CLARIFICATION

WTP - 300 - EAST DUNKARD TRT PLT

Settled water turbidity is not less than raw water turbidity and/or is greater than 5 NTU.

Remarks:At the time of inspection, the settled water turbidity is 13.165 NTU.

COMMAND AND CONTROL

Not all process control decisions are made by an available operator or through use of SOPs

Remarks:

General Comments

The routine partial inspection is taking place in response to plant shutdowns that occurred January 25, 2022 at approximately 3:00AM and 12:30PM.

Additionally, January 23, 2022 data submitted to the Department are indicative of a breakdown in treatment. On January 23, 2022, IFE turbidity data on filters 3 & 4 exceeded 1.0 NTU between 8:07AM and 12:19PM. During the same time period, CFE turbidity data exceeded 1.0 NTU. The Department did not receive 1-hour notification of the high turbidity results. While turbidity data exceeded the shutdown set points, the plant did not shut down as designed. The Department requests alarm and shutdown testing logs for the last six (6) months.

On January 25, 2022 at 8:11AM, the Giardia inactivation was 0.76 log, which is less than 90% inactivation, and was not restored within 4 hours.

According to Walter, DelPAC and chlorine concentrations were lowered on Sunday in response to decreasing raw water turbidity and increasing chlorine concentrations, respectively. The staff member is not a certified operator and did not confer with an operator prior to making operational decisions. Additionally, there were no SOPs the staff member could consult for guidance.

Signatures

Received by(Print Name):

Unable To Receive Signature:

Completed offsite

Investigator (Print Name):

ERIC NORMAN

WATER SUPPLY INSPECTION REPORT

Facility Name EAST DUNKARD WATER AUTHORITY	PWSID No 5300012	Inspection Date 2022-01-26
Facility Location ROUTE 88 DILLINER PA 15327	County Greene	Municipality Cumberland
Responsible Officials Name DORSEY JERRY	Telephone: (724) 943-3713	
	SystemType: Community	Population: 4200
Certified Operator name FADDIS TIMOTHY C	Field Order Number: ----	
	Issue Date(mm/dd/yy): ----	

eFACTS info

Inspection ID: 3312206

Inspection Type: ADMIN

Violations

B4 - Section 13(a) of the PA SDWA (35 P.S. Section 721.13(a)) and 25 PA Code, Chapter 109.4(4)

8 - SYSTEM MANAGEMENT

DS - 001 - DUNKARD TWP

OTHER SIGNIFICANT DEFICIENCIES

B4: The water system failed to comply with an Order issued by DEP, which is a violation of Section 13(a) of the PA SDWA (35 P.S. Section 721.13(a)) and Title 25 Pa. Code 109.4(4).

General Comments

The system failed to submit turbidity data, chlorine residual data, and 1-Log Giardia inactivation for January 22, 2022 in accordance with the timeframes set forth in Field Order 53-21-1627-022 (FO) which was issued August 8, 2021. Additionally, the turbidity data and chlorine residual data for January 23, 2022 were not submitted in accordance with the timeframes set forth in FO.

The data were not submitted to the Department until January 25, 2022. With the submission of the data, the

system also failed to indicate relevant events or factors which affected said result in accordance with the FO.

TUS A-11-1_Attachment

Signatures

Received by(Print Name):

Unable To Receive Signature:

Completed offsite

Investigator (Print Name):

ERIC NORMAN

WATER SUPPLY INSPECTION REPORT

Facility Name EAST DUNKARD WATER AUTHORITY	PWSID No 5300012	Inspection Date 2022-01-26
Facility Location ROUTE 88 DILLINER PA 15327	County Greene	Municipality Cumberland
Responsible Officials Name DORSEY JERRY	Telephone: (724) 943-3713	
	SystemType: Community	Population: 4200
Certified Operator name FADDIS TIMOTHY C	Field Order Number: ----	
	Issue Date(mm/dd/yy): ----	

Person(s) Interviewed

Name: STEVE LOWTHER	Title: OPERATOR
Name: JUSTIN ROBINSON	Title: WORKER

eFACTS info

Inspection ID: 3312456	Inspection Type: ADMIN

Violations

B4 - Section 13(a) of the PA SDWA (35 P.S. Section 721.13(a)) and 25 PA Code, Chapter 109.4(4)

8 - SYSTEM MANAGEMENT

DS - 001 - DUNKARD TWP

OTHER SIGNIFICANT DEFICIENCIES

B4: The water system failed to comply with an Order issued by DEP, which is a violation of Section 13(a) of the PA SDWA (35 P.S. Section 721.13(a)) and Title 25 Pa. Code 109.4(4).

General Comments

In speaking with Steve Lowther, and then Justin Robinson, the plant was operated un-

manned on January 25 and 26, 2022; this is a failure to comply with Field Order 22-55-1627-029 which was issued on January 25, 2022.

TUS A-11-1_Attachment

Signatures

Received by(Print Name):

Unable To Receive Signature:

Completed offsite

Investigator (Print Name):

ERIC NORMAN

WATER SUPPLY INSPECTION REPORT

Facility Name EAST DUNKARD WATER AUTHORITY	PWSID No 5300012	Inspection Date 2022-01-31
Facility Location ROUTE 88 DILLINER PA 15327	County Greene	Municipality Cumberland
Responsible Officials Name DORSEY JERRY	Telephone: (724) 943-3713	
	SystemType: Community	Population: 4200
Certified Operator name ----	Field Order Number: ----	
	Issue Date(mm/dd/yy): ----	

eFACTS info

Inspection ID: 3314106

Inspection Type: ADMIN

Violations

B4 - Section 13(a) of the PA SDWA (35 P.S. Section 721.13(a)) and 25 PA Code, Chapter 109.4(4)

8 - SYSTEM MANAGEMENT

DS - 001 - DUNKARD TWP

OTHER SIGNIFICANT DEFICIENCIES

B4: The water system failed to comply with an Order issued by DEP, which is a violation of Section 13(a) of the PA SDWA (35 P.S. Section 721.13(a)) and Title 25 Pa. Code 109.4(4).

General Comments

The system failed to submit turbidity and chlorine data for January 29, 2022 in accordance with the timeframes set forth in Field Order 53-21-1627-022 which was issued August 8, 2021. The data were not submitted until until January 31, 2022.

Received by(Print Name):

Unable To Receive Signature:

Completed offsite

Investigator (Print Name):

ERIC NORMAN

WATER SUPPLY INSPECTION REPORT

Facility Name EAST DUNKARD WATER AUTHORITY	PWSID No 5300012	Inspection Date 2022-02-04
Facility Location ROUTE 88 DILLINER PA 15327	County Greene	Municipality Cumberland
Responsible Officials Name DORSEY JERRY	Telephone: (724) 943-3713	
	SystemType: Community	Population: 4200
Certified Operator name ----	Field Order Number: ----	
	Issue Date(mm/dd/yy): ----	

Person(s) Interviewed

Name: JUSTIN ROBINSON

Title: WORKER

eFACTS info

Inspection ID: 3317638

Inspection Type: ADMIN

B3B - 25 PA Code, Chapter 109.701(a)(3)

8 - SYSTEM MANAGEMENT

DS - 001 - DUNKARD TWP

OTHER SIGNIFICANT DEFICIENCIES

B3b: The water system failed to provide 1-hour notification to DEP informing them that a priority violation exists relating to system management, which is a violation of Title 25 Pa. Code 109.701(a)(3).

B4 - Section 13(a) of the PA SDWA (35 P.S. Section 721.13(a)) and 25 PA Code, Chapter 109.4(4)

8 - SYSTEM MANAGEMENT

DS - 001 - DUNKARD TWP

OTHER SIGNIFICANT DEFICIENCIES

B4: The water system failed to comply with an Order issued by DEP, which is a violation of Section 13(a) of the PA SDWA (35 P.S. Section 721.13(a)) and Title 25 Pa. Code 109.4(4).

B6E - 25 PA Code, Chapter 109.703(c)

8 - SYSTEM MANAGEMENT

DS - 001 - DUNKARD TWP

ALARMS & SHUTDOWNS

B6e: The water system is chronically failing to test alarm and shutdown capabilities, which is a violation of Title 25 Pa. Code 109.703(c)

Operator Certification

COMMAND AND CONTROL

Not all process control decisions are made by an available operator or through use of SOPs

Remarks:

General Comments

On January 30, 2022, a filter-to-waste valve became stuck and the process was shifted to manual without the approval of a certified operator or consulting SOPs. On February 4, 2022, the plant went into automatic shutdown due to a turbidity spike. The plant was brought back online without the approval of a certified operator or consulting SOPs. The water system is in violation of FO 22-55-1627-029 issued January 25, 2022

TUS A-11-1 Attachment
for a non-certified worker making process control decisions on both January 30, 2022 and February 4, 2022 without counseling the SOPs approved by the current certified operator or the certified operator.

On February 3, 2022, the turbidity on Filter #4 registered as 10 followed shortly by finished water turbidity in excess of 1.0 from 12:47PM to 12:55 PM. However, the plant did not enter automatic shutdown. The water system is in violation of Field Order (FO) 53-21-1627-022 issued August 20, 2021 for not having alarms and shutdowns tested and working properly.

Erratic turbidity data for January 30, 2022 and February 3, 2022 were submitted to the Department without explanation. The water system is in violation of FO 53-21-1627-022 for submitting erratic data from January 30, 2022 without providing explanations of relevant events or factors.

Chlorine entry point residual went under 1.5 from 11:32 AM to 9:22 PM on February 3, 2022. The water system is in violation of FO 22-55-1627-029 due to the entry point chlorine residual decreased below 1.5 mg/L.

Data has been submitted to the Department late on multiple occasions in violation of FO 53-21-1627-022. Please ensure that all data are submitted within the timeframes set forth in the FO.

Per a conversation with Justin Robinson, the plant experienced a turbidity spike on February 4, 2022 at 11:31AM. The plant did not shut off for 6 minutes. The spike is thought to be the result of a drawn-down of a sediment-laden raw water well due to poor cleaning of the intake screen. The plant was brought back on-line, but was then shut back down quickly due to increased turbidity. The certified operator was then contacted for process control decisions, but as of 3:10PM was not yet made available for consultation.

Signatures

Received by(Print Name):

Unable To Receive Signature:

Completed offsite

Investigator (Print Name):

ERIC NORMAN

WATER SUPPLY INSPECTION REPORT

Facility Name EAST DUNKARD WATER AUTHORITY	PWSID No 5300012	Inspection Date 2022-02-23
Facility Location ROUTE 88 DILLINER PA 15327	County Greene	Municipality Cumberland
Responsible Officials Name DORSEY JERRY	Telephone: (724) 943-3713	
	SystemType: Community	Population: 4200
Certified Operator name ----	Field Order Number: ----	
	Issue Date(mm/dd/yy): ----	

eFACTS info

Inspection ID: 3324936

Inspection Type: ADMIN

Violations

B4 - Section 13(a) of the PA SDWA (35 P.S. Section 721.13(a)) and 25 PA Code, Chapter 109.4(4)

8 - SYSTEM MANAGEMENT

DS - 001 - DUNKARD TWP

OTHER SIGNIFICANT DEFICIENCIES

B4: The water system failed to comply with an Order issued by DEP, which is a violation of Section 13(a) of the PA SDWA (35 P.S. Section 721.13(a)) and Title 25 Pa. Code 109.4(4).

Remarks: The water system failed to comply with Field Order 53-21-1627-022, issued by the Department August 8, 2021, by not including "any relevant events or factors which affect sample results, such as backwashes or calibrations...on these daily data submissions" when the February 21, 2022 data were submitted to the Department on February 22, 2022.

Received by(Print Name): ----	Unable To Receive Signature: Completed offsite
Investigator (Print Name): ERIC NORMAN	

WATER SUPPLY INSPECTION REPORT

Facility Name EAST DUNKARD WATER AUTHORITY	PWSID No 5300012	Inspection Date 2022-03-16
Facility Location ROUTE 88 DILLINER, PA 15327	County Greene	Municipality Cumberland
Responsible Officials Name JERRY DORSEY	Telephone: (724) 943-3713	
	SystemType: Community	Population: 4200
Certified Operator name SMEARCHECK MARK D	Field Order Number: ----	
	Issue Date(mm/dd/yy): ----	

Person(s) Interviewed

Name: TRACY PEKAR	Title: BOARDMEMBER
Name: JUSTIN ROBINSON	Title: LABORER
Name: MARK SMEARCHECK	Title: OPERATOR

eFACTS info

Inspection ID: 3332976	Inspection Type: RTPT

General Comments

A routine partial inspection is taking place on March 16, 2022 of the EDWA plant and associated facilities. Additionally, I am attending a board meeting to answer questions regarding the Boil Water Advisory and associated Field Order, and to explain outstanding issues at the plant.

During the board meeting it was stated that Bald Hill Tank is leaking in multiple location. As a reminder, cleaning and/or repairing the tank may require a permit. Please contact our permitting group for more information.

The pump and tubing currently being used to drain the clearwell is not NSF approved. As such, use of the

equipment is not in compliance with regulations and longterm use is not recommended.

TUS A-11-1_Attachment

As discussed, additional pumps and/or different pump for feeding chemicals may require a permit amendment. Please contact our permitting group for more information.

The company contracted to clean the sludge pond is currently on location setting-up equipment. The Department requests to be notified when the cleaning begins, when the cleaning is completed, and if any problems occur which alter the cleaning timeline.

Guidance for creating SOPs and EPAs Method 334.0 were requested by EDWA and will be provided in emails following the inspection.

EDWA has installed a new fan in the gas chlorine room. However, the plant remains without an SCBA.

During the inspection the Department requested to observe a filter backwash. Filter #1 was observed. During the purging stage the turbidity on Filter #2 increased slightly. However, during the filter-to-waste stage turbidity on both Filters #2 and 4 spiked significantly. Turbidity changes on Filter #3 remained insignificant during the backwash. The Department recommends deriving the cause and rectifying the issue.

Multiple violation, significant deficiencies, and minor deficiencies remain outstanding for the water system

Signatures

Received by(Print Name):

Unable To Receive Signature:

Completed offsite

Investigator (Print Name):

ERIC NORMAN

WATER SUPPLY INSPECTION REPORT

Facility Name EAST DUNKARD WATER AUTHORITY	PWSID No 5300012	Inspection Date 2022-03-30
Facility Location ROUTE 88 DILLINER, PA 15327	County Greene	Municipality Cumberland
Responsible Officials Name JERRY DORSEY	Telephone: (724) 943-3713	
	SystemType: Community	Population: 4200
Certified Operator name SMEARCHECK MARK D	Field Order Number: ----	
	Issue Date(mm/dd/yy): ----	

Person(s) Interviewed

Name: TRACY PEKAR	Title: BOARDMEMBER
Name: JUSTIN ROBINSON	Title: LABORER

eFACTS info

Inspection ID: 3339641	Inspection Type: FUI

General Comments

A follow-up inspection is being conducted on March 30, 2022 of East Dunkard Water Authority. Specifically, the Department is inspecting the clarifier, and getting a status update on sludge removal.

Multiple violations remain outstanding for the Authority.

Received by(Print Name): ----	Unable To Receive Signature: Compl
Investigator (Print Name): ERIC NORMAN	

WATER SUPPLY INSPECTION REPORT

Facility Name EAST DUNKARD WATER AUTHORITY	PWSID No 5300012	Inspection Date 2022-04-06
Facility Location ROUTE 88 DILLINER, PA 15327	County Greene	Municipality Cumberland
Responsible Officials Name JERRY DORSEY	Telephone: (724) 943-3713	
	SystemType: Community	Population: 4200
Certified Operator name SMEARCHECK MARK D	Field Order Number: ----	
	Issue Date(mm/dd/yy): ----	

eFACTS info

Inspection ID: 3344659

Inspection Type: FUI

General Comments

The inspection is taking place on April 6, 2022 with EDWA, contracted engineers, a Tonka representative, and an equipment contractor to discuss ongoing compliance issues at the plant.

During the inspection we discussed alarm and shutdown lags, CFE location, possible causes of the turbidity fluctuations during backwashes, air-scour laterals, pond-cleaning progress, a new gearbox quote, and chlorine gas detectors.

A portion of the lag in the plant shutting down after a shutdown parameter has been triggered is due to a time lapse in the VFD stopping and the valve between the clarifier and the filters closing. The equipment contractor seemed to think the valve could be adjusted to close faster.

The engineers want to test a CFE location after the IFEs, but before the clearwell. The engineers asked for permission to move the CFE from its current location into the new location for testing.

It was stated that the remainder of the hardened sludge in the clarifier would be cleaned out in the AM hours of tomorrow. The pond-cleaning is almost complete. The contracted cleaners stated that everything

should be completed by Friday afternoon, but are waiting on the last of the sludge from the clarifier.

TUS A-11-1_Attachment

It was discussed that the turbidity fluctuations during backwashing may be caused by breakthrough. The Department recommends placing the determination of exactly what is causing the fluctuations and exactly how to resolve the issue as a high priority.

Multiple significant deficiencies and violations remain outstanding for the system.

Signatures

Received by(Print Name):

Unable To Receive Signature:

Completed offsite

Investigator (Print Name):

ERIC NORMAN

WATER SUPPLY INSPECTION REPORT

Facility Name EAST DUNKARD WATER AUTHORITY	PWSID No 5300012	Inspection Date 2022-04-07
Facility Location ROUTE 88 DILLINER, PA 15327	County Greene	Municipality Cumberland
Responsible Officials Name JERRY DORSEY	Telephone: (724) 943-3713	
	SystemType: Community	Population: 4200
Certified Operator name SMEARCHECK MARK D	Field Order Number: ----	
	Issue Date(mm/dd/yy): ----	

eFACTS info

Inspection ID: 3344685

Inspection Type: FUI

General Comments

A meeting is taking place at EDWA on April 7, 2022 to discuss multiple Public Notices and Certification Forms. Additionally, the Department explained the significant deficiency process in detail, expressed monitoring and reporting concerns, and how to utilize DWRS to track submitted data.

The SCADA contractor is also present today so we discussed alternate shutdown locations for IFE data. Also, a log to track more specific details on alarms was discussed.

The clarifier has been drained and cleaned, and is currently being flushed into the sludge-pressing machine. By the end of the inspection the clarifier was being filled. The rake arm is currently working. Jar tests are underway to determine flocculant dosage.

Multiple significant deficiencies and violations remain outstanding for the system.

Received by(Print Name): ----	Unable To Receive Signature: Completed offsite
Investigator (Print Name): ERIC NORMAN	

WATER SUPPLY INSPECTION REPORT

Facility Name EAST DUNKARD WATER AUTHORITY	PWSID No 5300012	Inspection Date 2022-04-28
Facility Location ROUTE 88 DILLINER, PA 15327	County Greene	Municipality Cumberland
Responsible Officials Name JERRY DORSEY	Telephone: (724) 943-3713	
	SystemType: Community	Population: 4200
Certified Operator name SMEARCHECK MARK D	Field Order Number: ----	
	Issue Date(mm/dd/yy): ----	

eFACTS info

Inspection ID: 3354731

Inspection Type: RTPT

General Comments

The inspection is being conducted on April 28, 2022 in response to a complaint of dirty water.

Signatures

Received by(Print Name):

Unable To Receive Signature:

Completed offsite

Investigator (Print Name):

ERIC NORMAN

WATER SUPPLY INSPECTION REPORT

Facility Name EAST DUNKARD WATER AUTHORITY	PWSID No 5300012	Inspection Date 2022-04-28
Facility Location ROUTE 88 DILLINER, PA 15327	County Greene	Municipality Cumberland
Responsible Officials Name JERRY DORSEY	Telephone: (724) 943-3713	
	SystemType: Community	Population: 4200
Certified Operator name SMEARCHECK MARK D	Field Order Number: ----	
	Issue Date(mm/dd/yy): ----	

Person(s) Interviewed

Name: TRACY PEKAR

Title: BOARD

Name: BRANDON

Title: LABORER

eFACTS info

Inspection ID: 3354806

Inspection Type: RTPT

2B- CONVENTIONAL FILTRATION**FLOCCULATION**

WTP - 300 - EAST DUNKARD TRT PLT

The mechanical equipment for the mixers within the flocculation basins is not functioning properly.

Remarks:The motor is not properly sized for the gear box resulting in a slower rotation speed of the rake arm. As the rake arm is meant to aid in blanket suspension, it is thought by EDWA that the reduced rake-arm speed may have caused sludge to settle out of suspension faster than designed thereby causing the rake arm to become slowed and/or stuck which could cause the love-joy to sever. The water system is attempting to procure a motor which fits the gear box.

4- WATER STORAGE**CHLORINE CONTACT OR PRESSURE TANK**

ST - 011 - BALD HILL TANK

There is evidence of a structure leak in the chlorine contact tank.

Remarks:There is currently a leak approximately 2 feet off the base which is spraying water despite being temporarily plugged. Upon closer inspection, it would appear that the tank has been recently punctured multiple times, perhaps as an act of vandalism by use of a firearm. The Department recommends installing trail cameras in an attempt to determine the cause of the repeated punctures.

General Comments

A routine partial inspection is taking place on April 28, 2022 of East Dunkard Water Authority and associated facilities.

Only small portions of the sludge blanket in the clarifier are moving properly, the remainder appears to be still. The lack of movement could be due to the undersized rake-arm motor which EDWA is currently attempting to address.

Bald Hill tank is currently leaking and EDWA will repair the leak. EDWA is currently attempting to procure funding to have the tank inspected and the lining fully repaired. The Department requests pictures of the repaired leak once completed.

Multiple deficiencies and violations remain outstanding for the water system.

Received by(Print Name):

Unable To Receive Signature:

Completed offsite

Investigator (Print Name):

ERIC NORMAN

WATER SUPPLY INSPECTION REPORT

Facility Name EAST DUNKARD WATER AUTHORITY		PWSID No 5300012	Inspection Date 2022-05-31
Facility Location ROUTE 88 DILLINER, PA 15327	County Greene	Municipality Cumberland	
Responsible Officials Name JERRY DORSEY	Telephone: (724) 943-3713		
	System Type: Community	Population: 4200	
Certified Operator Name SMEARCHECK MARK D	Field Order Number: ----		
	Issue Date (mm/dd/yy): ----		

Person(s) Interviewed

Name: Justin Robinson	Title: Plant Manager
Name: Brad Babyak	Title: Distribution Lead

eFACTS info

Inspection ID: 3371882	Inspection Type COMPL

Outstanding Violations

B4 - Section 13(a) of the PA SDWA (35 P.S. Section 721.13(a)) and 25 PA Code, Chapter 109.4(4) Remarks: B4: The water system failed to comply with an Order issued by DEP, which is a violation of Section 13(a) of the PA SDWA (35 P.S. Section 721.13(a)) and Title 25 Pa. Code 109.4(4). B4: The water system failed to comply with an Order issued by DEP, which is a violation of Section 13(a) of the PA SDWA (35 P.S. Section 721.13(a)) and Title 25 Pa. Code 109.4(4).
A1 - 25 PA Code, Chapter 109.4 Remarks: Turbidity exceedances
B4 - Section 13(a) of the PA SDWA (35 P.S. Section 721.13(a)) and 25 PA Code, Chapter 109.4(4) Remarks: Certified operator not consulted and no SOPs (violation of Order 22-55-1627-029)

B4 - Section 13(a) of the PA SDWA (35 P.S. Section 721.13(a)) and 25 PA Code, Chapter 109.4(4)

Remarks: The water system failed to comply with Field Order 53-21-1627-022, issued by the Department August 8, 2021, by not including any relevant events or factors which affect sample results, such as backwashes or calibrations on these daily data submissions when the February 21, 2022 data were submitted to the Department on February 22, 2022.

B4: The water system failed to comply with an Order issued by DEP, which is a violation of Section 13(a) of the PA SDWA (35 P.S. Section 721.13(a)) and Title 25 Pa. Code 109.4(4).

C4A - 25 PA Code, Chapter 109.4

Remarks: Operating without personnel present during operations without the presence of a certified operator

A1 - 25 PA Code, Chapter 109.4

Remarks: LogG not provided on 1/25/2022 for at least 4-hours

E1B - 25 PA Code, Chapter 302.1202(a)(2)

Remarks: Process control decisions (changing coagulant and chlorine doses) made without the knowledge of the Certified Operator

A1 - 25 PA Code, Chapter 109.4

Remarks: Filtrate treatment breakdown on 1/23/2022

C3E - 25 PA Code, Chapter 109.703(b)(5)

Remarks: As of January 18, 2022 a filter bed evaluation plan has not been implemented. The water system does not implement a filter bed evaluation that is acceptable to the Department.

C2A - 25 PA Code, Chapter 109.301

Remarks: The CFE remains located inside the clearwell and after chemical addition. CFE turbidity measurements are not continuously monitored and/or recorded at least every 15 minutes.

C1A - 25 PA Code, Chapter 109.602

Remarks: Secondary containment has not yet been addressed on DelPAC, ortho drums, and caustic soda.

The chemical storage tanks do not have secondary containment sufficient to hold the volume of 110% of the largest tank to prevent accidental discharge in the event of a spill or overflow. This does not meet the design standards set forth in the Public Water Supply Manual.

C1A - 25 PA Code, Chapter 109.602

Remarks: As an update, an SCBA was found on location. However, the age of the equipment and last date of inspection is unknown. The location of additional cartridges for the face mask remain unknown.

Appropriate safety equipment is not provided in the treatment plant, which does not meet the design standards set forth in the Public Water Supply Manual.

C1A - 25 PA Code, Chapter 109.602

Remarks: The plant has automatic shutdown of the service pumps; however, this is not the correct location for any of the parameters.

The filter plant is not staffed continuously while the plant is operating and is not equipped with shutdown capabilities; which does not meet the design standards set forth in the Public Water Supply Manual.

C4A - 25 PA Code, Chapter 109.4

Remarks: The clearwell has not yet been inspected.

The water system does not inspect the interior of the storage tank. AWWA Standard M42 recommends that storage tanks are cleaned and inspected once every three years.

D3 - 25 PA Code, Chapter 109.701(i)

Remarks: As of January 18, 2022, the system is not accurately reporting hours of operation.

The water system failed to ensure that all data reported to the Department accurately represents test results.

C2C - 25 PA Code, Chapter 109.304(c)

Remarks: SOPs have not yet been provided by a certified operator.

Accreditation-by-rule parameters are not analyzed by an accredited lab, an appropriately certified operator or an individual following an SOP written by an appropriately certified operator.

C2B - 25 PA Code, Chapter 109.304(a)

Remarks:

There is no documentation to demonstrate that each individual that conducts analysis of chlorine for compliance monitoring or comparison grab samples at the water system has completed the analyst IDC in accordance with EPA Method 334.0.

C2B - 25 PA Code, Chapter 109.304(a)

Remarks:

There is no documentation to demonstrate that the initial calibration verification has been completed in accordance with EPA Method 334.0 for each handheld or benchtop instrument used for analysis of chlorine for compliance monitoring, comparison grab samples or to obtain results needed to calculate log inactivation.

C2B - 25 PA Code, Chapter 109.304(a)**Remarks:**

There is no documentation to demonstrate that each on-line instrument used for analysis of chlorine for compliance monitoring or to obtain results needed to calculate log inactivation has passed the instrument IDC in accordance with EPA Method 334.0.

C2B - 25 PA Code, Chapter 109.304(a)**Remarks:**

There is no documentation for the most recent 12 months to demonstrate that routine quarterly calibration verifications have been completed in accordance with EPA Method 334.0 for each handheld or benchtop instrument used for analysis of chlorine to compliance monitoring, comparison grab samples or to obtain results needed to calculate log inactivation.

C2B - 25 PA Code, Chapter 109.304(a)**Remarks:**

There is no documentation for the most recent 12 months to demonstrate that routine weekly comparative grab sampling analysis has been completed in accordance with EPA Method 334.0 for each on-line instrument used for analysis of chlorine for compliance monitoring or to obtain results needed to calculate log inactivation.

D2I - 25 PA Code, Chapter 109.708

Remarks: FAILURE TO CERTIFY COMPLETION OF AN UNINTERRUPTED SYSTEM SERVICE PLAN

B4 - Section 13(a) of the PA SDWA (35 P.S. Section 721.13(a)) and 25 PA Code, Chapter 109.4(4)

Remarks: The PWS violated Field Order# 53-21-1627-022 for failure to provide EP chlorine for August 20-23, 2021, for not including any relevant events or factors which affect sample results, such as backwashes or calibrations clearly indicated on these data submissions, for operating without personnel prior to alarm verification, and for not providing SOPs for Tier 1 Public Notices and 1-hour notifications.

B4: The water system failed to comply with an Order issued by DEP, which is a violation of Section 13(a) of the PA SDWA (35 P.S. Section 721.13(a)) and Title 25 Pa. Code 109.4(4).

B6A - 25 PA Code, Chapter 109.4

Remarks: There is no reliable fan in the chlorine room and no leak-detection alarm. There is no SCBA for the gas chlorine. A face mask with cartridge filters is used instead, but the location of additional cartridges is unknown. Additionally, CT parameters are not collected at the end of the disinfection segment and an SOP for changing chlorine cylinders is absent.:

B6a: Violations exist that are deemed to be a significant deficiency relating to the chlorine treatment, which is a violation of Title 25 Pa. Code 109.4.

B6A - 25 PA Code, Chapter 109.4

Remarks: Issues as mentioned in Inspection ID# 3223868. Additionally: the PWS does not filter-to-waste properly, there is a significant lack of waste-holding capacity, there are mud balls forming on the filter, the media is uneven and the sand and anthracite have mixed, the CFE turbidimeter remains in the wrong location, and the backwashing SOP is insufficient

B6a: Violations exist that are deemed to be a significant deficiency relating to the conventional filtration treatment. This is a violation of Title 25 Pa. Code 109.4.

B6F - 25 PA Code, Chapter 109.304(a)

Remarks: As mentioned in Inspection ID#3223868 and the previous Sanitary Survey, Method 334 is not being utilized.

B6f: The water system is chronically failing to follow approved methods for sampling and analysis, which is a violation of Title 25 Pa. Code 109.304(a).

B6C - 25 PA Code, Chapter 109.701

Remarks: The system chronically fails to accurately report hours of operation.

B6c: The water system is chronically failing to ensure that all data reported to the Department accurately represents test results. This is a violation of Title 25 Pa. Code 109.701.

B6A - 25 PA Code, Chapter 109.4

Remarks: The system chronically fails to accurately report hours of operation.

B6a: Violations exist that are deemed to be a significant deficiency relating to monitoring and reporting, which is a violation of Title 25 Pa. Code 109.4.

C2A - 25 PA Code, Chapter 109.301

Remarks: Upon notification by DEP, chlorine samples were taken every four hours at Griffin Tank Entry Point when chlorine analyzer was inoperable. One sample taken daily prior to notification. A Tier 3 Public Notice is required for this monitoring violation.

The water system did not collect grab samples for turbidity and/or chlorine residual (as applicable) every four hours during periods of continuous monitoring equipment failure.

C2G - 25 PA Code, Chapter 109.1305

Remarks: Chlorine meter at Griffin Tank Entry Point inoperable since July 17th due to storm. Department not notified and grab samples were not collected every 4 hours beginning with the malfunction on 7/17/2021. Tier 3 Public Notification is required for this monitoring violation. The chlorine residual is not continuously monitored and recorded at least every 15 minutes.

C4A - 25 PA Code, Chapter 109.4

Remarks: No flow meter at Griffin Tank Entry Point

Flow rate meters used to collect measurements needed to calculate log inactivation are not calibrated and/or functioning properly.

D3 - 25 PA Code, Chapter 109.701(i)

Remarks: CFE capped at 1.0 NTU. CFE is also placed after the addition of chlorine and orthophosphate. Consult with the Department's technical services section regarding the relocation of the turbidimeter or utilization of a flow weighted average of IFEs.
The CFE turbidimeter and recording device are not capable of reading and recording turbidities at least 1.5 NTU.

C3E - 25 PA Code, Chapter 109.703(b)(5)

Remarks: No filter bed evaluation program
The water system does not implement a filter bed evaluation that is acceptable to the Department.

C3D - 25 PA Code, Chapter 109.703(b)

Remarks: No filter to waste for one full filter volume after backwash. Backwash runs 10 minutes and/or 0.2 NTU
Following a backwash, operators do not filter-to-waste for one full filter volume and until turbidity levels are less than 0.30 NTU, or if using an alternate technique until the post-backwash turbidity spike is less than 0.15 NTU.

B6F - 25 PA Code, Chapter 109.304(a)

Remarks: No Method 334 used
B6f: The water system is chronically failing to follow approved methods for sampling and analysis, which is a violation of Title 25 Pa. Code 109.304(a).

General Comments

An inspection of the East Dunkard Water Authority is taking place on May 31, 2022 to check on a blow-off installed on a line near a complaint, and to check on condition at the treatment plant.

A plastic blow-off with a ball valve has been installed on the plastic line. The blow-off has been used to flush the line in an attempt to improve water quality. A valve on the line has also been recently replaced.

The cover on the pond riser utilized during pond cleaning remains in place.

EDWA has plans to reinstall the clearwell overflow pipe soon.

A new pump has been installed to drain the clearwell.

A new chlorine detector has been installed in the gas chlorine room. However, there is currently something wrong with the electrical outlet. An electrician will be on location soon to fix the outlet.

The system now has an SCBA.

Justin discussed the proposed location of a reservoir for a CFE monitor. There is not constant flow at the location. The flow slows and then stops after the plant has been shut down.

The valve after the clarifier has yet to be repaired, but quotes have been received.

The leak at Bald Hill tank has been repaired.

Multiple violations and deficiencies remain outstanding for the system.

Signatures**Received by(Print Name):**

Unable To Receive Signature:

Completed offsite

Investigator (Print Name):

Eric Norman

WATER SUPPLY INSPECTION REPORT

Facility Name EAST DUNKARD WATER AUTHORITY	PWSID No 5300012	Inspection Date 2022-06-21
Facility Location ROUTE 88 DILLINER, PA 15327	County Greene	Municipality Cumberland
Responsible Officials Name JERRY DORSEY	Telephone: (724) 943-3713	
	System Type: Community	Population: 4200
Certified Operator Name SMEARCHECK MARK D	Field Order Number: ----	
	Issue Date (mm/dd/yy): ----	

eFACTS info

Inspection ID: 3380501	Inspection Type ADMIN

Violations

A3 - 25 PA Code, §109.701(a)(3) 2J - CHLORINE DISINFECTION WTP:300 - EAST DUNKARD TRT PLT OTHER SIGNIFICANT DEFICIENCIES Remarks: A3: The public water supplier failed to provide 1-hour notification to DEP informing them of an imminent threat situation that is occurring associated with the chlorine treatment. This is a violation of Title 25 Pa. Code 109.701(a)(3).
C2A - 25 PA Code, §109.301 2J - CHLORINE DISINFECTION WTP:300 - EAST DUNKARD TRT PLT CT INFORMATION Remarks: The chlorine residual is not continuously monitored and recorded at least every 15 minutes.

Outstanding Violations**C2A - 25 PA Code, §109.301**

Remarks: The CFE remains located inside the clearwell and after chemical addition. CFE turbidity measurements are not continuously monitored and/or recorded at least every 15 minutes.

C3E - 25 PA Code, §109.703(b)(5)

Remarks: As of January 18, 2022 a filter bed evaluation plan has not been implemented. The water system does not implement a filter bed evaluation that is acceptable to the Department.

C2B - 25 PA Code, §109.304(a)

Remarks:
There is no documentation for the most recent 12 months to demonstrate that routine weekly comparative grab sampling analysis has been completed in accordance with EPA Method 334.0 for each on-line instrument used for analysis of chlorine for compliance monitoring or to obtain results needed to calculate log inactivation.

C1A - 25 PA Code, §109.602

Remarks: Secondary containment has not yet been addressed on DelPAC, ortho drums, and caustic soda. The chemical storage tanks do not have secondary containment sufficient to hold the volume of 110% of the largest tank to prevent accidental discharge in the event of a spill or overflow. This does not meet the design standards set forth in the Public Water Supply Manual.

C1A - 25 PA Code, §109.602

Remarks: The plant has automatic shutdown of the service pumps; however, this is not the correct location for any of the parameters. The filter plant is not staffed continuously while the plant is operating and is not equipped with shutdown capabilities; which does not meet the design standards set forth in the Public Water Supply Manual.

C4A - 25 PA Code, §109.4

Remarks: The clearwell has not yet been inspected. The water system does not inspect the interior of the storage tank. AWWA Standard M42 recommends that storage tanks are cleaned and inspected once every three years.

D3 - 25 PA Code, §109.701(i)

Remarks: As of January 18, 2022, the system is not accurately reporting hours of operation. The water system failed to ensure that all data reported to the Department accurately represents test results.

C2B - 25 PA Code, §109.304(a)**Remarks:**

There is no documentation to demonstrate that each individual that conducts analysis of chlorine for compliance monitoring or comparison grab samples at the water system has completed the analyst IDC in accordance with EPA Method 334.0.

C2B - 25 PA Code, §109.304(a)**Remarks:**

There is no documentation to demonstrate that the initial calibration verification has been completed in accordance with EPA Method 334.0 for each handheld or benchtop instrument used for analysis of chlorine for compliance monitoring, comparison grab samples or to obtain results needed to calculate log inactivation.

C2B - 25 PA Code, §109.304(a)**Remarks:**

There is no documentation to demonstrate that each on-line instrument used for analysis of chlorine for compliance monitoring or to obtain results needed to calculate log inactivation has passed the instrument IDC in accordance with EPA Method 334.0.

C2B - 25 PA Code, §109.304(a)**Remarks:**

There is no documentation for the most recent 12 months to demonstrate that routine quarterly calibration verifications have been completed in accordance with EPA Method 334.0 for each handheld or benchtop instrument used for analysis of chlorine to compliance monitoring, comparison grab samples or to obtain results needed to calculate log inactivation.

D2I - 25 PA Code, §109.708

Remarks: FAILURE TO CERTIFY COMPLETION OF AN UNINTERRUPTED SYSTEM SERVICE PLAN

B6A - 25 PA Code, §109.4

Remarks: Issues as mentioned in Inspection ID# 3223868. Additionally: the PWS does not filter-to-waste properly, there is a significant lack of waste-holding capacity, there are mud balls forming on the filter, the media is uneven and the sand and anthracite have mixed, the CFE turbidimeter remains in the wrong location, and the backwashing SOP is insufficient

B6a: Violations exist that are deemed to be a significant deficiency relating to the conventional filtration treatment. This is a violation of Title 25 Pa. Code 109.4.

B6F - 25 PA Code, §109.304(a)

Remarks: As mentioned in Inspection ID#3223868 and the previous Sanitary Survey, Method 334 is not being utilized.

B6f: The water system is chronically failing to follow approved methods for sampling and analysis, which is a violation of Title 25 Pa. Code 109.304(a).

B6C - 25 PA Code, §109.701

Remarks: The system chronically fails to accurately report hours of operation.

B6c: The water system is chronically failing to ensure that all data reported to the Department accurately represents test results. This is a violation of Title 25 Pa. Code 109.701.

B6A - 25 PA Code, §109.4

Remarks: The system chronically fails to accurately report hours of operation.

B6a: Violations exist that are deemed to be a significant deficiency relating to monitoring and reporting, which is a violation of Title 25 Pa. Code 109.4.

C3E - 25 PA Code, §109.703(b)(5)

Remarks: No filter bed evaluation program

The water system does not implement a filter bed evaluation that is acceptable to the Department.

D3 - 25 PA Code, §109.701(i)

Remarks: CFE is placed after the addition of chlorine and orthophosphate. Consult with the Department's technical services section regarding the relocation of the turbidimeter or utilization of a flow weighted average of IFEs.

The CFE turbidimeter and recording device are not capable of reading and recording turbidities at least 1.5 NTU.

B6F - 25 PA Code, §109.304(a)

Remarks: No Method 334 used

B6f: The water system is chronically failing to follow approved methods for sampling and analysis, which is a violation of Title 25 Pa. Code 109.304(a).

C4A - 25 PA Code, §109.4

Remarks: No flow meter at Griffin Tank Entry Point

Flow rate meters used to collect measurements needed to calculate log inactivation are not calibrated and/or functioning properly.

Outstanding Violations Returned to Compliance**C2C - 25 PA Code, §109.304(c)****Corrected/Abated**

Remarks: SOPs have not yet been provided by a certified operator.

Accreditation-by-rule parameters are not analyzed by an accredited lab, an appropriately certified operator or an individual following an SOP written by an appropriately certified operator.

B4 - Section 13(a) of the PA SDWA (35 P.S. Section 721.13(a)) and 25 PA Code, Chapter 109.4(4)**Addressed Through Enforcement**

Remarks: Certified operator not consulted and no SOPs (violation of Order 22-55-1627-029)

A1 - 25 PA Code, §109.4**Corrected/Abated**

Remarks: Turbidity exceedances

C1A - 25 PA Code, §109.602**Corrected/Abated**

Remarks: As an update, an SCBA was found on location. However, the age of the equipment and last date of inspection is unknown. The location of additional cartridges for the face mask remain unknown.

Appropriate safety equipment is not provided in the treatment plant, which does not meet the design standards set forth in the Public Water Supply Manual.

General Comments

On June 20, 2022, the chlorine analyzer was taken offline for approximately 2.5 hours while being cleaned and calibrated. The Department was not notified within 1-hour that chlorine was not being monitored continuously.

Signatures

Received by(Print Name): ----	Unable To Receive Signature: Completed offsite
Investigator (Print Name): Eric Norman	

WATER SUPPLY INSPECTION REPORT

Facility Name EAST DUNKARD WATER AUTHORITY		PWSID No 5300012	Inspection Date 2022-06-30
Facility Location ROUTE 88 DILLINER, PA 15327	County Greene	Municipality Cumberland	
Responsible Officials Name JERRY DORSEY	Telephone: (724) 943-3713		
	System Type: Community	Population: 4200	
Certified Operator Name	Field Order Number: ----		
	Issue Date (mm/dd/yy): ----		

eFACTS info

Inspection ID: 3385340	Inspection Type ADMIN

Outstanding Violations

C2A - 25 PA Code, §109.301 Remarks: The CFE remains located inside the clearwell and after chemical addition. CFE turbidity measurements are not continuously monitored and/or recorded at least every 15 minutes.
C3E - 25 PA Code, §109.703(b)(5) Remarks: As of January 18, 2022 a filter bed evaluation plan has not been implemented. The water system does not implement a filter bed evaluation that is acceptable to the Department.
C4A - 25 PA Code, §109.4 Remarks: The clearwell has not yet been inspected. The water system does not inspect the interior of the storage tank. AWWA Standard M42 recommends that storage tanks are cleaned and inspected once every three years.

C1A - 25 PA Code, §109.602

Remarks: The plant has automatic shutdown of the service pumps; however, this is not the correct location for any of the parameters.

The filter plant is not staffed continuously while the plant is operating and is not equipped with shutdown capabilities; which does not meet the design standards set forth in the Public Water Supply Manual.

C1A - 25 PA Code, §109.602

Remarks: Secondary containment has not yet been addressed on DelPAC, ortho drums, and caustic soda.

The chemical storage tanks do not have secondary containment sufficient to hold the volume of 110% of the largest tank to prevent accidental discharge in the event of a spill or overflow. This does not meet the design standards set forth in the Public Water Supply Manual.

D3 - 25 PA Code, §109.701(i)

Remarks: As of January 18, 2022, the system is not accurately reporting hours of operation.

The water system failed to ensure that all data reported to the Department accurately represents test results.

C2B - 25 PA Code, §109.304(a)**Remarks:**

There is no documentation to demonstrate that each individual that conducts analysis of chlorine for compliance monitoring or comparison grab samples at the water system has completed the analyst IDC in accordance with EPA Method 334.0.

C2B - 25 PA Code, §109.304(a)**Remarks:**

There is no documentation to demonstrate that the initial calibration verification has been completed in accordance with EPA Method 334.0 for each handheld or benchtop instrument used for analysis of chlorine for compliance monitoring, comparison grab samples or to obtain results needed to calculate log inactivation.

C2B - 25 PA Code, §109.304(a)**Remarks:**

There is no documentation to demonstrate that each on-line instrument used for analysis of chlorine for compliance monitoring or to obtain results needed to calculate log inactivation has passed the instrument IDC in accordance with EPA Method 334.0.

C2B - 25 PA Code, §109.304(a)**Remarks:**

There is no documentation for the most recent 12 months to demonstrate that routine quarterly calibration verifications have been completed in accordance with EPA Method 334.0 for each handheld or benchtop instrument used for analysis of chlorine to compliance monitoring, comparison grab samples or to obtain results needed to calculate log inactivation.

C2B - 25 PA Code, §109.304(a)**Remarks:**

There is no documentation for the most recent 12 months to demonstrate that routine weekly comparative grab sampling analysis has been completed in accordance with EPA Method 334.0 for each on-line instrument used for analysis of chlorine for compliance monitoring or to obtain results needed to calculate log inactivation.

D2I - 25 PA Code, §109.708

Remarks: FAILURE TO CERTIFY COMPLETION OF AN UNINTERRUPTED SYSTEM SERVICE PLAN

B6A - 25 PA Code, §109.4

Remarks: Issues as mentioned in Inspection ID# 3223868. Additionally: the PWS does not filter-to-waste properly, there is a significant lack of waste-holding capacity, there are mud balls forming on the filter, the media is uneven and the sand and anthracite have mixed, the CFE turbidimeter remains in the wrong location, and the backwashing SOP is insufficient

B6a: Violations exist that are deemed to be a significant deficiency relating to the conventional filtration treatment. This is a violation of Title 25 Pa. Code 109.4.

B6F - 25 PA Code, §109.304(a)

Remarks: As mentioned in Inspection ID#3223868 and the previous Sanitary Survey, Method 334 is not being utilized.

B6f: The water system is chronically failing to follow approved methods for sampling and analysis, which is a violation of Title 25 Pa. Code 109.304(a).

B6C - 25 PA Code, §109.701

Remarks: The system chronically fails to accurately report hours of operation.

B6c: The water system is chronically failing to ensure that all data reported to the Department accurately represents test results. This is a violation of Title 25 Pa. Code 109.701.

B6A - 25 PA Code, §109.4

Remarks: The system chronically fails to accurately report hours of operation.

B6a: Violations exist that are deemed to be a significant deficiency relating to monitoring and reporting, which is a violation of Title 25 Pa. Code 109.4.

General Comments

Potential violations 22124 and 22125 are being assessed for validity. Upon calculation and review of TOC data, the RAA has exceeded regulatory limits and a Tier 2 Public Notice should have been issued within 30days. The violations are valid and a Public Notice is required.

Signatures

Received by(Print Name): ----	Unable To Receive Signature: Completed offsite
Investigator (Print Name): Eric Norman	

WATER SUPPLY INSPECTION REPORT

Facility Name EAST DUNKARD WATER AUTHORITY	PWSID No 5300012	Inspection Date 2022-07-01
Facility Location ROUTE 88 DILLINER, PA 15327	County Greene	Municipality Cumberland
Responsible Officials Name JERRY DORSEY	Telephone: (724) 943-3713	
	System Type: Community	Population: 4200
Certified Operator Name	Field Order Number: ----	
	Issue Date (mm/dd/yy): ----	

eFACTS info

Inspection ID: 3385756	Inspection Type ADMIN

Outstanding Violations

C2A - 25 PA Code, §109.301 Remarks: The CFE remains located inside the clearwell and after chemical addition. CFE turbidity measurements are not continuously monitored and/or recorded at least every 15 minutes.
C3E - 25 PA Code, §109.703(b)(5) Remarks: As of January 18, 2022 a filter bed evaluation plan has not been implemented. The water system does not implement a filter bed evaluation that is acceptable to the Department.
C4A - 25 PA Code, §109.4 Remarks: The clearwell has not yet been inspected. The water system does not inspect the interior of the storage tank. AWWA Standard M42 recommends that storage tanks are cleaned and inspected once every three years.

C1A - 25 PA Code, §109.602

Remarks: The plant has automatic shutdown of the service pumps; however, this is not the correct location for any of the parameters.

The filter plant is not staffed continuously while the plant is operating and is not equipped with shutdown capabilities; which does not meet the design standards set forth in the Public Water Supply Manual.

C1A - 25 PA Code, §109.602

Remarks: Secondary containment has not yet been addressed on DelPAC, ortho drums, and caustic soda.

The chemical storage tanks do not have secondary containment sufficient to hold the volume of 110% of the largest tank to prevent accidental discharge in the event of a spill or overflow. This does not meet the design standards set forth in the Public Water Supply Manual.

D3 - 25 PA Code, §109.701(i)

Remarks: As of January 18, 2022, the system is not accurately reporting hours of operation.

The water system failed to ensure that all data reported to the Department accurately represents test results.

C2B - 25 PA Code, §109.304(a)**Remarks:**

There is no documentation to demonstrate that each individual that conducts analysis of chlorine for compliance monitoring or comparison grab samples at the water system has completed the analyst IDC in accordance with EPA Method 334.0.

C2B - 25 PA Code, §109.304(a)**Remarks:**

There is no documentation to demonstrate that the initial calibration verification has been completed in accordance with EPA Method 334.0 for each handheld or benchtop instrument used for analysis of chlorine for compliance monitoring, comparison grab samples or to obtain results needed to calculate log inactivation.

C2B - 25 PA Code, §109.304(a)**Remarks:**

There is no documentation to demonstrate that each on-line instrument used for analysis of chlorine for compliance monitoring or to obtain results needed to calculate log inactivation has passed the instrument IDC in accordance with EPA Method 334.0.

C2B - 25 PA Code, §109.304(a)**Remarks:**

There is no documentation for the most recent 12 months to demonstrate that routine quarterly calibration verifications have been completed in accordance with EPA Method 334.0 for each handheld or benchtop instrument used for analysis of chlorine to compliance monitoring, comparison grab samples or to obtain results needed to calculate log inactivation.

C2B - 25 PA Code, §109.304(a)**Remarks:**

There is no documentation for the most recent 12 months to demonstrate that routine weekly comparative grab sampling analysis has been completed in accordance with EPA Method 334.0 for each on-line instrument used for analysis of chlorine for compliance monitoring or to obtain results needed to calculate log inactivation.

D2I - 25 PA Code, §109.708

Remarks: FAILURE TO CERTIFY COMPLETION OF AN UNINTERRUPTED SYSTEM SERVICE PLAN

B6A - 25 PA Code, §109.4

Remarks: Issues as mentioned in Inspection ID# 3223868. Additionally: the PWS does not filter-to-waste properly, there is a significant lack of waste-holding capacity, there are mud balls forming on the filter, the media is uneven and the sand and anthracite have mixed, the CFE turbidimeter remains in the wrong location, and the backwashing SOP is insufficient

B6a: Violations exist that are deemed to be a significant deficiency relating to the conventional filtration treatment. This is a violation of Title 25 Pa. Code 109.4.

B6F - 25 PA Code, §109.304(a)

Remarks: As mentioned in Inspection ID#3223868 and the previous Sanitary Survey, Method 334 is not being utilized.

B6f: The water system is chronically failing to follow approved methods for sampling and analysis, which is a violation of Title 25 Pa. Code 109.304(a).

B6C - 25 PA Code, §109.701

Remarks: The system chronically fails to accurately report hours of operation.

B6c: The water system is chronically failing to ensure that all data reported to the Department accurately represents test results. This is a violation of Title 25 Pa. Code 109.701.

B6A - 25 PA Code, §109.4

Remarks: The system chronically fails to accurately report hours of operation.

B6a: Violations exist that are deemed to be a significant deficiency relating to monitoring and reporting, which is a violation of Title 25 Pa. Code 109.4.

General Comments

TOC violations 12319, 12320, 22124, and 22125 are being closed because Public Notices and associated Certifications have been issued to the customers and received by the Department, respectively.

Signatures

Received by(Print Name): ----	Unable To Receive Signature: Completed offsite
Investigator (Print Name): Eric Norman	

WATER SUPPLY INSPECTION REPORT

Facility Name EAST DUNKARD WATER AUTHORITY	PWSID No 5300012	Inspection Date 2022-07-25
Facility Location ROUTE 88 DILLINER, PA 15327	County Greene	Municipality Cumberland
Responsible Officials Name JERRY DORSEY	Telephone: (724) 943-3713	
	System Type: Community	Population: 4200
Certified Operator Name SMEARCHECK MARK D	Field Order Number: ----	
	Issue Date (mm/dd/yy): ----	

eFACTS info

Inspection ID: 3396727	Inspection Type COMPL

Outstanding Violations

C2B - 25 PA Code, §109.304(a) Remarks: There is no documentation to demonstrate that each individual that conducts analysis of chlorine for compliance monitoring or comparison grab samples at the water system has completed the analyst IDC in accordance with EPA Method 334.0.
C3E - 25 PA Code, §109.703(b)(5) Remarks: As of January 18, 2022 a filter bed evaluation plan has not been implemented. The water system does not implement a filter bed evaluation that is acceptable to the Department.
C2A - 25 PA Code, §109.301 Remarks: The CFE remains located inside the clearwell and after chemical addition. CFE turbidity measurements are not continuously monitored and/or recorded at least every 15 minutes.

C1A - 25 PA Code, §109.602

Remarks: Secondary containment has not yet been addressed on DelPAC, ortho drums, and caustic soda.

The chemical storage tanks do not have secondary containment sufficient to hold the volume of 110% of the largest tank to prevent accidental discharge in the event of a spill or overflow. This does not meet the design standards set forth in the Public Water Supply Manual.

C2B - 25 PA Code, §109.304(a)

Remarks:

There is no documentation for the most recent 12 months to demonstrate that routine weekly comparative grab sampling analysis has been completed in accordance with EPA Method 334.0 for each on-line instrument used for analysis of chlorine for compliance monitoring or to obtain results needed to calculate log inactivation.

C1A - 25 PA Code, §109.602

Remarks: The plant has automatic shutdown of the service pumps; however, this is not the correct location for any of the parameters.

The filter plant is not staffed continuously while the plant is operating and is not equipped with shutdown capabilities; which does not meet the design standards set forth in the Public Water Supply Manual.

C4A - 25 PA Code, §109.4

Remarks: The clearwell has not yet been inspected.

The water system does not inspect the interior of the storage tank. AWWA Standard M42 recommends that storage tanks are cleaned and inspected once every three years.

D3 - 25 PA Code, §109.701(i)

Remarks: As of January 18, 2022, the system is not accurately reporting hours of operation.

The water system failed to ensure that all data reported to the Department accurately represents test results.

C2B - 25 PA Code, §109.304(a)

Remarks:

There is no documentation to demonstrate that the initial calibration verification has been completed in accordance with EPA Method 334.0 for each handheld or benchtop instrument used for analysis of chlorine for compliance monitoring, comparison grab samples or to obtain results needed to calculate log inactivation.

C2B - 25 PA Code, §109.304(a)**Remarks:**

There is no documentation to demonstrate that each on-line instrument used for analysis of chlorine for compliance monitoring or to obtain results needed to calculate log inactivation has passed the instrument IDC in accordance with EPA Method 334.0.

C2B - 25 PA Code, §109.304(a)**Remarks:**

There is no documentation for the most recent 12 months to demonstrate that routine quarterly calibration verifications have been completed in accordance with EPA Method 334.0 for each handheld or benchtop instrument used for analysis of chlorine to compliance monitoring, comparison grab samples or to obtain results needed to calculate log inactivation.

B6A - 25 PA Code, §109.4

Remarks: Issues as mentioned in Inspection ID# 3223868. Additionally: the PWS does not filter-to-waste properly, there is a significant lack of waste-holding capacity, there are mud balls forming on the filter, the media is uneven and the sand and anthracite have mixed, the CFE turbidimeter remains in the wrong location, and the backwashing SOP is insufficient

B6a: Violations exist that are deemed to be a significant deficiency relating to the conventional filtration treatment. This is a violation of Title 25 Pa. Code 109.4.

B6F - 25 PA Code, §109.304(a)

Remarks: As mentioned in Inspection ID#3223868 and the previous Sanitary Survey, Method 334 is not being utilized.

B6f: The water system is chronically failing to follow approved methods for sampling and analysis, which is a violation of Title 25 Pa. Code 109.304(a).

B6A - 25 PA Code, §109.4

Remarks: The system chronically fails to accurately report hours of operation.

B6a: Violations exist that are deemed to be a significant deficiency relating to monitoring and reporting, which is a violation of Title 25 Pa. Code 109.4.

B6C - 25 PA Code, §109.701

Remarks: The system chronically fails to accurately report hours of operation.

B6c: The water system is chronically failing to ensure that all data reported to the Department accurately represents test results. This is a violation of Title 25 Pa. Code 109.701.

General Comments

Distribution water samples are being collected in Dunkard Township on July 25, 2022 regarding a water supply complaint.

Multiple violations remain outstanding for the system.

Signatures

Received by(Print Name): ----	Unable To Receive Signature: Completed offsite
Investigator (Print Name): Eric Norman	

WATER SUPPLY INSPECTION REPORT

Facility Name EAST DUNKARD WATER AUTHORITY	PWSID No 5300012	Inspection Date 2022-07-25
Facility Location ROUTE 88 DILLINER, PA 15327	County Greene	Municipality Cumberland
Responsible Officials Name JERRY DORSEY	Telephone: (724) 943-3713	
	System Type: Community	Population: 4200
Certified Operator Name SMEARCHECK MARK D	Field Order Number: ----	
	Issue Date (mm/dd/yy): ----	

eFACTS info

Inspection ID: 3396731	Inspection Type COMPL

Outstanding Violations

C2B - 25 PA Code, §109.304(a) Remarks: There is no documentation to demonstrate that each individual that conducts analysis of chlorine for compliance monitoring or comparison grab samples at the water system has completed the analyst IDC in accordance with EPA Method 334.0.
C3E - 25 PA Code, §109.703(b)(5) Remarks: As of January 18, 2022 a filter bed evaluation plan has not been implemented. The water system does not implement a filter bed evaluation that is acceptable to the Department.
C2A - 25 PA Code, §109.301 Remarks: The CFE remains located inside the clearwell and after chemical addition. CFE turbidity measurements are not continuously monitored and/or recorded at least every 15 minutes.

C1A - 25 PA Code, §109.602

Remarks: Secondary containment has not yet been addressed on DelPAC, ortho drums, and caustic soda.

The chemical storage tanks do not have secondary containment sufficient to hold the volume of 110% of the largest tank to prevent accidental discharge in the event of a spill or overflow. This does not meet the design standards set forth in the Public Water Supply Manual.

C2B - 25 PA Code, §109.304(a)

Remarks:

There is no documentation for the most recent 12 months to demonstrate that routine weekly comparative grab sampling analysis has been completed in accordance with EPA Method 334.0 for each on-line instrument used for analysis of chlorine for compliance monitoring or to obtain results needed to calculate log inactivation.

C1A - 25 PA Code, §109.602

Remarks: The plant has automatic shutdown of the service pumps; however, this is not the correct location for any of the parameters.

The filter plant is not staffed continuously while the plant is operating and is not equipped with shutdown capabilities; which does not meet the design standards set forth in the Public Water Supply Manual.

C4A - 25 PA Code, §109.4

Remarks: The clearwell has not yet been inspected.

The water system does not inspect the interior of the storage tank. AWWA Standard M42 recommends that storage tanks are cleaned and inspected once every three years.

D3 - 25 PA Code, §109.701(i)

Remarks: As of January 18, 2022, the system is not accurately reporting hours of operation.

The water system failed to ensure that all data reported to the Department accurately represents test results.

C2B - 25 PA Code, §109.304(a)

Remarks:

There is no documentation to demonstrate that the initial calibration verification has been completed in accordance with EPA Method 334.0 for each handheld or benchtop instrument used for analysis of chlorine for compliance monitoring, comparison grab samples or to obtain results needed to calculate log inactivation.

C2B - 25 PA Code, §109.304(a)**Remarks:**

There is no documentation to demonstrate that each on-line instrument used for analysis of chlorine for compliance monitoring or to obtain results needed to calculate log inactivation has passed the instrument IDC in accordance with EPA Method 334.0.

C2B - 25 PA Code, §109.304(a)**Remarks:**

There is no documentation for the most recent 12 months to demonstrate that routine quarterly calibration verifications have been completed in accordance with EPA Method 334.0 for each handheld or benchtop instrument used for analysis of chlorine to compliance monitoring, comparison grab samples or to obtain results needed to calculate log inactivation.

B6A - 25 PA Code, §109.4

Remarks: Issues as mentioned in Inspection ID# 3223868. Additionally: the PWS does not filter-to-waste properly, there is a significant lack of waste-holding capacity, there are mud balls forming on the filter, the media is uneven and the sand and anthracite have mixed, the CFE turbidimeter remains in the wrong location, and the backwashing SOP is insufficient

B6a: Violations exist that are deemed to be a significant deficiency relating to the conventional filtration treatment. This is a violation of Title 25 Pa. Code 109.4.

B6F - 25 PA Code, §109.304(a)

Remarks: As mentioned in Inspection ID#3223868 and the previous Sanitary Survey, Method 334 is not being utilized.

B6f: The water system is chronically failing to follow approved methods for sampling and analysis, which is a violation of Title 25 Pa. Code 109.304(a).

B6A - 25 PA Code, §109.4

Remarks: The system chronically fails to accurately report hours of operation.

B6a: Violations exist that are deemed to be a significant deficiency relating to monitoring and reporting, which is a violation of Title 25 Pa. Code 109.4.

B6C - 25 PA Code, §109.701

Remarks: The system chronically fails to accurately report hours of operation.

B6c: The water system is chronically failing to ensure that all data reported to the Department accurately represents test results. This is a violation of Title 25 Pa. Code 109.701.

General Comments

Distribution water samples are being collected in Dunkard Township on July 25, 2022 regarding a water supply complaint.

Signatures

Received by(Print Name):

Unable To Receive Signature:

Completed offsite

Investigator (Print Name):

Eric Norman

WATER SUPPLY INSPECTION REPORT

Facility Name EAST DUNKARD WATER AUTHORITY	PWSID No 5300012	Inspection Date 2022-07-25
Facility Location ROUTE 88 DILLINER, PA 15327	County Greene	Municipality Cumberland
Responsible Officials Name JERRY DORSEY	Telephone: (724) 943-3713	
	System Type: Community	Population: 4200
Certified Operator Name SMEARCHECK MARK D	Field Order Number: ----	
	Issue Date (mm/dd/yy): ----	

eFACTS info

Inspection ID: 3396735	Inspection Type COMPL

Outstanding Violations

C2B - 25 PA Code, §109.304(a) Remarks: There is no documentation to demonstrate that each individual that conducts analysis of chlorine for compliance monitoring or comparison grab samples at the water system has completed the analyst IDC in accordance with EPA Method 334.0.
C3E - 25 PA Code, §109.703(b)(5) Remarks: As of January 18, 2022 a filter bed evaluation plan has not been implemented. The water system does not implement a filter bed evaluation that is acceptable to the Department.
C2A - 25 PA Code, §109.301 Remarks: The CFE remains located inside the clearwell and after chemical addition. CFE turbidity measurements are not continuously monitored and/or recorded at least every 15 minutes.

C1A - 25 PA Code, §109.602

Remarks: Secondary containment has not yet been addressed on DelPAC, ortho drums, and caustic soda.

The chemical storage tanks do not have secondary containment sufficient to hold the volume of 110% of the largest tank to prevent accidental discharge in the event of a spill or overflow. This does not meet the design standards set forth in the Public Water Supply Manual.

C2B - 25 PA Code, §109.304(a)

Remarks:

There is no documentation for the most recent 12 months to demonstrate that routine weekly comparative grab sampling analysis has been completed in accordance with EPA Method 334.0 for each on-line instrument used for analysis of chlorine for compliance monitoring or to obtain results needed to calculate log inactivation.

C1A - 25 PA Code, §109.602

Remarks: The plant has automatic shutdown of the service pumps; however, this is not the correct location for any of the parameters.

The filter plant is not staffed continuously while the plant is operating and is not equipped with shutdown capabilities; which does not meet the design standards set forth in the Public Water Supply Manual.

C4A - 25 PA Code, §109.4

Remarks: The clearwell has not yet been inspected.

The water system does not inspect the interior of the storage tank. AWWA Standard M42 recommends that storage tanks are cleaned and inspected once every three years.

D3 - 25 PA Code, §109.701(i)

Remarks: As of January 18, 2022, the system is not accurately reporting hours of operation.

The water system failed to ensure that all data reported to the Department accurately represents test results.

C2B - 25 PA Code, §109.304(a)

Remarks:

There is no documentation to demonstrate that the initial calibration verification has been completed in accordance with EPA Method 334.0 for each handheld or benchtop instrument used for analysis of chlorine for compliance monitoring, comparison grab samples or to obtain results needed to calculate log inactivation.

C2B - 25 PA Code, §109.304(a)**Remarks:**

There is no documentation to demonstrate that each on-line instrument used for analysis of chlorine for compliance monitoring or to obtain results needed to calculate log inactivation has passed the instrument IDC in accordance with EPA Method 334.0.

C2B - 25 PA Code, §109.304(a)**Remarks:**

There is no documentation for the most recent 12 months to demonstrate that routine quarterly calibration verifications have been completed in accordance with EPA Method 334.0 for each handheld or benchtop instrument used for analysis of chlorine to compliance monitoring, comparison grab samples or to obtain results needed to calculate log inactivation.

B6A - 25 PA Code, §109.4

Remarks: Issues as mentioned in Inspection ID# 3223868. Additionally: the PWS does not filter-to-waste properly, there is a significant lack of waste-holding capacity, there are mud balls forming on the filter, the media is uneven and the sand and anthracite have mixed, the CFE turbidimeter remains in the wrong location, and the backwashing SOP is insufficient

B6a: Violations exist that are deemed to be a significant deficiency relating to the conventional filtration treatment. This is a violation of Title 25 Pa. Code 109.4.

B6F - 25 PA Code, §109.304(a)

Remarks: As mentioned in Inspection ID#3223868 and the previous Sanitary Survey, Method 334 is not being utilized.

B6f: The water system is chronically failing to follow approved methods for sampling and analysis, which is a violation of Title 25 Pa. Code 109.304(a).

B6A - 25 PA Code, §109.4

Remarks: The system chronically fails to accurately report hours of operation.

B6a: Violations exist that are deemed to be a significant deficiency relating to monitoring and reporting, which is a violation of Title 25 Pa. Code 109.4.

B6C - 25 PA Code, §109.701

Remarks: The system chronically fails to accurately report hours of operation.

B6c: The water system is chronically failing to ensure that all data reported to the Department accurately represents test results. This is a violation of Title 25 Pa. Code 109.701.

General Comments

Distribution water samples are being collected in Dunkard Township on July 25, 2022 regarding a water supply complaint.

Signatures

Received by(Print Name):

Unable To Receive Signature:

Completed offsite

Investigator (Print Name):

Eric Norman

WATER SUPPLY INSPECTION REPORT

Facility Name EAST DUNKARD WATER AUTHORITY	PWSID No 5300012	Inspection Date 2022-07-28
Facility Location ROUTE 88 DILLINER, PA 15327	County Greene	Municipality Cumberland
Responsible Officials Name JERRY DORSEY	Telephone: (724) 943-3713	
	System Type: Community	Population: 4200
Certified Operator Name	Field Order Number: ----	
	Issue Date (mm/dd/yy): ----	

Person(s) Interviewed

Name: Brad	Title: Distribution Supervisor
Name: Justin	Title: Plant Manager
Name: Tracy	Title: Board Member
Name: Teresa	Title: Office Manager

eFACTS info

Inspection ID: 3401460	Inspection Type FUI

Outstanding Violations

C3E - 25 PA Code, §109.703(b)(5) Remarks: As of January 18, 2022 a filter bed evaluation plan has not been implemented. The water system does not implement a filter bed evaluation that is acceptable to the Department.
C2A - 25 PA Code, §109.301 Remarks: The CFE remains located inside the clearwell and after chemical addition. CFE turbidity measurements are not continuously monitored and/or recorded at least every 15 minutes.

C1A - 25 PA Code, §109.602

Remarks: Secondary containment has not yet been addressed on DelPAC, ortho drums, and caustic soda.

The chemical storage tanks do not have secondary containment sufficient to hold the volume of 110% of the largest tank to prevent accidental discharge in the event of a spill or overflow. This does not meet the design standards set forth in the Public Water Supply Manual.

C1A - 25 PA Code, §109.602

Remarks: The plant has automatic shutdown of the service pumps; however, this is not the correct location for any of the parameters.

The filter plant is not staffed continuously while the plant is operating and is not equipped with shutdown capabilities; which does not meet the design standards set forth in the Public Water Supply Manual.

C4A - 25 PA Code, §109.4

Remarks: The clearwell has not yet been inspected.

The water system does not inspect the interior of the storage tank. AWWA Standard M42 recommends that storage tanks are cleaned and inspected once every three years.

D3 - 25 PA Code, §109.701(i)

Remarks: As of January 18, 2022, the system is not accurately reporting hours of operation.

The water system failed to ensure that all data reported to the Department accurately represents test results.

B6A - 25 PA Code, §109.4

Remarks: Issues as mentioned in Inspection ID# 3223868. Additionally: the PWS does not filter-to-waste properly, there is a significant lack of waste-holding capacity, there are mud balls forming on the filter, the media is uneven and the sand and anthracite have mixed, the CFE turbidimeter remains in the wrong location, and the backwashing SOP is insufficient

B6a: Violations exist that are deemed to be a significant deficiency relating to the conventional filtration treatment. This is a violation of Title 25 Pa. Code 109.4.

B6A - 25 PA Code, §109.4

Remarks: The system chronically fails to accurately report hours of operation.

B6a: Violations exist that are deemed to be a significant deficiency relating to monitoring and reporting, which is a violation of Title 25 Pa. Code 109.4.

B6C - 25 PA Code, §109.701

Remarks: The system chronically fails to accurately report hours of operation.

B6c: The water system is chronically failing to ensure that all data reported to the Department accurately represents test results. This is a violation of Title 25 Pa. Code 109.701.

Outstanding Violations Returned to Compliance**B6F - 25 PA Code, §109.304(a)****Corrected/Abated**

Remarks: As mentioned in Inspection ID#3223868 and the previous Sanitary Survey, Method 334 is not being utilized.

B6f: The water system is chronically failing to follow approved methods for sampling and analysis, which is a violation of Title 25 Pa. Code 109.304(a).

C2B - 25 PA Code, §109.304(a)**Corrected/Abated****Remarks:**

There is no documentation for the most recent 12 months to demonstrate that routine weekly comparative grab sampling analysis has been completed in accordance with EPA Method 334.0 for each on-line instrument used for analysis of chlorine for compliance monitoring or to obtain results needed to calculate log inactivation.

C2B - 25 PA Code, §109.304(a)**Corrected/Abated****Remarks:**

There is no documentation to demonstrate that the initial calibration verification has been completed in accordance with EPA Method 334.0 for each handheld or benchtop instrument used for analysis of chlorine for compliance monitoring, comparison grab samples or to obtain results needed to calculate log inactivation.

C2B - 25 PA Code, §109.304(a)**Corrected/Abated****Remarks:**

There is no documentation to demonstrate that each individual that conducts analysis of chlorine for compliance monitoring or comparison grab samples at the water system has completed the analyst IDC in accordance with EPA Method 334.0.

C2B - 25 PA Code, §109.304(a)**Corrected/Abated****Remarks:**

There is no documentation for the most recent 12 months to demonstrate that routine quarterly calibration verifications have been completed in accordance with EPA Method 334.0 for each handheld or benchtop instrument used for analysis of chlorine to compliance monitoring, comparison grab samples or to obtain results needed to calculate log inactivation.

C2B - 25 PA Code, §109.304(a)**Corrected/Abated****Remarks:**

There is no documentation to demonstrate that each on-line instrument used for analysis of chlorine for compliance monitoring or to obtain results needed to calculate log inactivation has passed the instrument IDC in accordance with EPA Method 334.0.

General Comments

Follow-up inspections are bring conducted on July 26 and 28, 2022 due to questions on EPA Method 334.0.

East Dunkard Water Authority (EDWA) is now in compliance with EPA Method 334.0. The Department recommends ensuring the operator's IDC is on location.

Per conversations with Tracy, Justin, and Brad, EDWA had the following updates and concern:

- engineers are still working on a solution for the CFE location
- EDWA has found a laboratory to process the filter bed samples and another independent entity to collect the sample
- a portion of the insulating walls around caustic tank have been removed and the tank is indeed double-walled
- engineers and EDWA are close to a solution on secondary containment for drums and the DelPAC tanks
- EDWA expressed concerns about the ability to backwash filters if the shutdown valve were to be placed prior to the clearwell
- all storage tanks including clearwells and the wet well are going to be inspected

How the hours of operation continue to be miscalculated has been discussed along with the possible ramifications on turbidity reporting. The Department requests a full month's data on how long the plant continues to produce water due to the broken valve after the high-service pumps have turned off.

A filter backwash was observed on the 28th. However, the filter was washed prematurely and did not appear to go through all the cycles needed to assess outstanding violations. Therefore, the Department will observe a full backwash at a later date.

Turbidity data continue to spike at plant start-up. Per EDWA personnel, it's thought that the filter water level drops after shutdown such that start-up produces a greater distance for water out of the weir to drop. The greater distance would cause increased velocity, which could be stirring up floc on top of the filter. The Department requests that EDWA measure the depth of water on-top the filter while the plant is producing, and the again while the plant is off but just before tank levels return the plant to service.

Signatures

Received by(Print Name):

Unable To Receive Signature:

Completed offsite

Investigator (Print Name):

Eric Norman

WATER SUPPLY INSPECTION REPORT

Facility Name EAST DUNKARD WATER AUTHORITY		PWSID No 5300012	Inspection Date 2022-08-03
Facility Location ROUTE 88 DILLINER, PA 15327	County Greene	Municipality Cumberland	
Responsible Officials Name JERRY DORSEY	Telephone: (724) 943-3713		
	System Type: Community	Population: 4200	
Certified Operator Name	Field Order Number: ----		
	Issue Date (mm/dd/yy): ----		

eFACTS info

Inspection ID: 3401471	Inspection Type COMPL

Outstanding Violations

C2B - 25 PA Code, §109.304(a) Remarks: There is no documentation to demonstrate that each individual that conducts analysis of chlorine for compliance monitoring or comparison grab samples at the water system has completed the analyst IDC in accordance with EPA Method 334.0.
C3E - 25 PA Code, §109.703(b)(5) Remarks: As of January 18, 2022 a filter bed evaluation plan has not been implemented. The water system does not implement a filter bed evaluation that is acceptable to the Department.
C2A - 25 PA Code, §109.301 Remarks: The CFE remains located inside the clearwell and after chemical addition. CFE turbidity measurements are not continuously monitored and/or recorded at least every 15 minutes.

C1A - 25 PA Code, §109.602

Remarks: Secondary containment has not yet been addressed on DelPAC, ortho drums, and caustic soda.

The chemical storage tanks do not have secondary containment sufficient to hold the volume of 110% of the largest tank to prevent accidental discharge in the event of a spill or overflow. This does not meet the design standards set forth in the Public Water Supply Manual.

C2B - 25 PA Code, §109.304(a)

Remarks:

There is no documentation for the most recent 12 months to demonstrate that routine weekly comparative grab sampling analysis has been completed in accordance with EPA Method 334.0 for each on-line instrument used for analysis of chlorine for compliance monitoring or to obtain results needed to calculate log inactivation.

C1A - 25 PA Code, §109.602

Remarks: The plant has automatic shutdown of the service pumps; however, this is not the correct location for any of the parameters.

The filter plant is not staffed continuously while the plant is operating and is not equipped with shutdown capabilities; which does not meet the design standards set forth in the Public Water Supply Manual.

C4A - 25 PA Code, §109.4

Remarks: The clearwell has not yet been inspected.

The water system does not inspect the interior of the storage tank. AWWA Standard M42 recommends that storage tanks are cleaned and inspected once every three years.

D3 - 25 PA Code, §109.701(i)

Remarks: As of January 18, 2022, the system is not accurately reporting hours of operation.

The water system failed to ensure that all data reported to the Department accurately represents test results.

C2B - 25 PA Code, §109.304(a)

Remarks:

There is no documentation to demonstrate that the initial calibration verification has been completed in accordance with EPA Method 334.0 for each handheld or benchtop instrument used for analysis of chlorine for compliance monitoring, comparison grab samples or to obtain results needed to calculate log inactivation.

C2B - 25 PA Code, §109.304(a)**Remarks:**

There is no documentation to demonstrate that each on-line instrument used for analysis of chlorine for compliance monitoring or to obtain results needed to calculate log inactivation has passed the instrument IDC in accordance with EPA Method 334.0.

C2B - 25 PA Code, §109.304(a)**Remarks:**

There is no documentation for the most recent 12 months to demonstrate that routine quarterly calibration verifications have been completed in accordance with EPA Method 334.0 for each handheld or benchtop instrument used for analysis of chlorine to compliance monitoring, comparison grab samples or to obtain results needed to calculate log inactivation.

B6A - 25 PA Code, §109.4

Remarks: Issues as mentioned in Inspection ID# 3223868. Additionally: the PWS does not filter-to-waste properly, there is a significant lack of waste-holding capacity, there are mud balls forming on the filter, the media is uneven and the sand and anthracite have mixed, the CFE turbidimeter remains in the wrong location, and the backwashing SOP is insufficient

B6a: Violations exist that are deemed to be a significant deficiency relating to the conventional filtration treatment. This is a violation of Title 25 Pa. Code 109.4.

B6F - 25 PA Code, §109.304(a)

Remarks: As mentioned in Inspection ID#3223868 and the previous Sanitary Survey, Method 334 is not being utilized.

B6f: The water system is chronically failing to follow approved methods for sampling and analysis, which is a violation of Title 25 Pa. Code 109.304(a).

B6A - 25 PA Code, §109.4

Remarks: The system chronically fails to accurately report hours of operation.

B6a: Violations exist that are deemed to be a significant deficiency relating to monitoring and reporting, which is a violation of Title 25 Pa. Code 109.4.

B6C - 25 PA Code, §109.701

Remarks: The system chronically fails to accurately report hours of operation.

B6c: The water system is chronically failing to ensure that all data reported to the Department accurately represents test results. This is a violation of Title 25 Pa. Code 109.701.

General Comments

Distribution water samples are being collected in Dunkard Township on August 2, 2022 regarding a water supply complaint.

Signatures

Received by(Print Name):

Unable To Receive Signature:

Completed offsite

Investigator (Print Name):

Eric Norman

WATER SUPPLY INSPECTION REPORT

Facility Name EAST DUNKARD WATER AUTHORITY		PWSID No 5300012	Inspection Date 2022-08-03
Facility Location ROUTE 88 DILLINER, PA 15327	County Greene		Municipality Cumberland
Responsible Officials Name JERRY DORSEY	Telephone: (724) 943-3713		
	System Type: Community		Population: 4200
Certified Operator Name SMEARCHECK MARK D	Field Order Number: ----		
	Issue Date (mm/dd/yy): ----		

eFACTS info

Inspection ID: 3410296	Inspection Type FUI

Violations

C4A - 25 PA Code, §109.4 2B - CONVENTIONAL FILTRATION WTP:300 - EAST DUNKARD TRT PLT FILTRATION Remarks: Mudballs or other debris is visible on top of the filter media.
C4A - 25 PA Code, §109.4 2B - CONVENTIONAL FILTRATION WTP:300 - EAST DUNKARD TRT PLT SEDEMENTATION/CLARIFICATION Remarks: Floc carry over onto the filters is visible without the aid of a spotlight.
C4A - 25 PA Code, §109.4 WTP:300 - EAST DUNKARD TRT PLT Remarks: The clarifier is not functioning properly.

C4A - 25 PA Code, §109.4

2B - CONVENTIONAL FILTRATION

WTP:300 - EAST DUNKARD TRT PLT

FILTRATION

Remarks: The backwash flow does not appear even across the entire filter bed.**Outstanding Violations****B4 - Section 13(a) of the PA SDWA (35 P.S. Section 721.13(a)) and 25 PA Code, Chapter 109.4(4)****D3 - 25 PA Code, §109.701(i)****Remarks:** As of January 18, 2022, the system is not accurately reporting hours of operation. The water system failed to ensure that all data reported to the Department accurately represents test results.**C3E - 25 PA Code, §109.703(b)(5)****Remarks:** As of January 18, 2022 a filter bed evaluation plan has not been implemented. The water system does not implement a filter bed evaluation that is acceptable to the Department.**C2A - 25 PA Code, §109.301****Remarks:** The CFE remains located inside the clearwell and after chemical addition. CFE turbidity measurements are not continuously monitored and/or recorded at least every 15 minutes.**C1A - 25 PA Code, §109.602****Remarks:** Secondary containment has not yet been addressed on DeIPAC, ortho drums, and caustic soda. The chemical storage tanks do not have secondary containment sufficient to hold the volume of 110% of the largest tank to prevent accidental discharge in the event of a spill or overflow. This does not meet the design standards set forth in the Public Water Supply Manual.**C1A - 25 PA Code, §109.602****Remarks:** The plant has automatic shutdown of the service pumps; however, this is not the correct location for any of the parameters. The filter plant is not staffed continuously while the plant is operating and is not equipped with shutdown capabilities; which does not meet the design standards set forth in the Public Water Supply Manual.

C4A - 25 PA Code, §109.4

Remarks: The clearwell has not yet been inspected.

The water system does not inspect the interior of the storage tank. AWWA Standard M42 recommends that storage tanks are cleaned and inspected once every three years.

B6A - 25 PA Code, §109.4

Remarks: Issues as mentioned in Inspection ID# 3223868. Additionally: the PWS does not filter-to-waste properly, there is a significant lack of waste-holding capacity, there are mud balls forming on the filter, the media is uneven and the sand and anthracite have mixed, the CFE turbidimeter remains in the wrong location, and the backwashing SOP is insufficient

B6a: Violations exist that are deemed to be a significant deficiency relating to the conventional filtration treatment. This is a violation of Title 25 Pa. Code 109.4.

B6C - 25 PA Code, §109.701

Remarks: The system chronically fails to accurately report hours of operation.

B6c: The water system is chronically failing to ensure that all data reported to the Department accurately represents test results. This is a violation of Title 25 Pa. Code 109.701.

B6A - 25 PA Code, §109.4

Remarks: The system chronically fails to accurately report hours of operation.

B6a: Violations exist that are deemed to be a significant deficiency relating to monitoring and reporting, which is a violation of Title 25 Pa. Code 109.4.

Minor Deficiencies**2B - CONVENTIONAL FILTRATION**

FILTRATION

WTP-300-EAST DUNKARD TRT PLT

Remarks: Operators do not observe filter backwashes.

2B - CONVENTIONAL FILTRATION

FILTRATION

WTP-300-EAST DUNKARD TRT PLT

Remarks: The filter is visibly losing media over the backwash trough during the high rate wash.

Outstanding Violations Returned to Compliance**C2B - 25 PA Code, §109.304(a)****Corrected/Abated****Remarks:**

There is no documentation for the most recent 12 months to demonstrate that routine quarterly calibration verifications have been completed in accordance with EPA Method 334.0 for each handheld or benchtop instrument used for analysis of chlorine to compliance monitoring, comparison grab samples or to obtain results needed to calculate log inactivation.

B6F - 25 PA Code, §109.304(a)**Corrected/Abated**

Remarks: As mentioned in Inspection ID#3223868 and the previous Sanitary Survey, Method 334 is not being utilized.

B6f: The water system is chronically failing to follow approved methods for sampling and analysis, which is a violation of Title 25 Pa. Code 109.304(a).

C2B - 25 PA Code, §109.304(a)**Corrected/Abated****Remarks:**

There is no documentation to demonstrate that the initial calibration verification has been completed in accordance with EPA Method 334.0 for each handheld or benchtop instrument used for analysis of chlorine for compliance monitoring, comparison grab samples or to obtain results needed to calculate log inactivation.

C2B - 25 PA Code, §109.304(a)**Corrected/Abated****Remarks:**

There is no documentation to demonstrate that each on-line instrument used for analysis of chlorine for compliance monitoring or to obtain results needed to calculate log inactivation has passed the instrument IDC in accordance with EPA Method 334.0.

C2B - 25 PA Code, §109.304(a)**Corrected/Abated****Remarks:**

There is no documentation to demonstrate that each individual that conducts analysis of chlorine for compliance monitoring or comparison grab samples at the water system has completed the analyst IDC in accordance with EPA Method 334.0.

C2B - 25 PA Code, §109.304(a)**Corrected/Abated****Remarks:**

There is no documentation for the most recent 12 months to demonstrate that routine weekly comparative grab sampling analysis has been completed in accordance with EPA Method 334.0 for each on-line instrument used for analysis of chlorine for compliance monitoring or to obtain results needed to calculate log inactivation.

General Comments

A follow-up inspection was conducted on August 3, 2022 to observe a backwash and assess associated outstanding violations. The clarifier was also inspected.

Prior to observing a backwash, large floc particles were observed at the surface of the clarifier. The sludge blanket remains uneven and there are two well-defined ridges which extent from the inner cone to the outer wall. Additionally, the sludge blanket is no longer fluid. Instead, the blanket is an unmoving mass with occasional boiling in confined, two or three foot diameter areas. The Department requested the blanket depth at the time of inspection, but has yet to receive the information. The Department also requests an update on getting the rake arm running at the designed speed. The Department suggests adding routine blanket measurements into the SOP. A violation has been issued for failure to maintain and operate the clarifier; this violation is subject to further enforcement action dependent upon corrective actions.

A backwash was observed of Filter 4. Prior to the start of the backwash, floc particles were observed on top the filter. At start-up of the backwash, two plumes of air, floc, and media bubbled to the surface of the water and into the troughs. The air scour is no longer in use. Additionally, the wash cycle is no longer split into low and high, but instead is a constant rate of 1,155GPM. In some areas media is visibly fluid during the backwash, however, there are two large strips, just offset the troughs, which are not fluid and seem caked with floc. Balls of material were also observed rolling around on top if the media during the backwash. After the backwash was completed, approximately 50% of the media was not noticeably cleaner. The two previously-mentioned strips remain unchanged. However, the media appeared to now be correctly re-stratifying. The Department requests East Dunkard Water Authority contact the Technical Services for a consultation regarding backwash procedures. A filter evaluation is also needed. The operator and/or staff backwashing the filters do not observe the backwash. The Department suggests including backwash observation into the SOP.

Signatures**Received by(Print Name):**

Unable To Receive Signature:

Completed offsite

Investigator (Print Name):

Eric Norman



August 11, 2021

NOTICE OF VIOLATION

CERTIFIED MAIL NO. 7019 1640 0002 0924 6069

East Dunkard Water Authority
Mr. James Holbert
P.O. Box 241
Dilliner, PA 15327

Re: Violation of the Pennsylvania Safe Drinking Water Act and Regulations
East Dunkard Water Authority
PWSID #5300012
Greene County

Dear Mr. Holbert:

On July 20 and 21, 2021, a routine partial inspection of the above facility found multiple significant deficiencies as noted in a separate Notice of Violation also dated August 11, 2021. In addition to the significant deficiencies, several other **violations** were noted during the inspection including the following:

1. (a) The alarms and shutdowns are not being tested quarterly.
(b) 25 PA Code, Chapter 109.703(c)
2. (a) Turbidity alarms have been set above regulatory requirements.
(b) 25 PA Code, Chapters 109.602
3. (a) The plant is not staffed continuously during operation and does not have automated shutdowns.
(b) 25 PA Code, Chapter 109.4
4. (a) The IFE turbidimeters are not continuously monitored due to being capped at 2.5 NTU.
(b) 25 PA Code, Chapter 109.301
5. (a) The Griffin Tank chlorine analyzer is inoperable and not continuously monitoring chlorine residuals. Additionally, until Department notification, grab samples were not being collected every four hours.
(b) 25 PA Code, Chapter 109.1305

- 2 -

6. (a) Operators do not filter-to-waste for one full filter volume and until turbidity levels are less than 0.30 NTU.
(b) 25 PA Code, Chapters 109.703(b)
7. (a) The system does not have a filter bed evaluation program.
(b) 25 PA Code, Chapter 109.703(b)(5)
8. (a) There is no flow meter at the Griffin Tank Entry Point.
(b) 25 PA Code, Chapter 109.4
9. (a) The system is not conducting operational/performance monitoring for phosphate, as per Special Condition A of their permit.
(b) 25 PA Code, Chapters 109.703(a)
10. (a) The CFE turbidimeter has been capped at 1.0 NTU.
(b) 25 PA Code, Chapter 109.703(5)

This letter is only intended to inform you of the existence of **violations** and of the ways in which you may move into compliance with the law. It neither imposes nor waives any enforcement action available to the Department under any of its statutes. If the Department determines that an enforcement action is appropriate, you will be notified of the action.

This Notice of Violation is neither an order nor any other final action of the Department of Environmental Protection.

If you have any questions concerning this matter, please contact me by email at ernorman@pa.gov or by telephone at 724.925.4525.

Sincerely,



Eric John Norman
Sanitarian
Safe Drinking Water Program

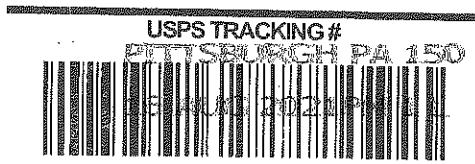
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Norman

SENDER: COMPLETE THIS SECTION		COMPLETE THIS SECTION ON DELIVERY	
■ Complete items 1, 2, and 3. ■ Print your name and address on the reverse so that we can return the card to you. ■ Attach this card to the back of the mailpiece, or on the front if space permits. 1. Article Addressed to: East Dunkard Water Authority MR. James Holbert P.O. Box 241 Dilliner, PA. 15327  9590 9402 6421 0303 0342 99		A. Signature <i>James Holbert</i> ☐ Agent ☐ Addressee B. Received by (Printed Name) <i>Jim Holbert</i> C. Date of Delivery <i>AUG 16 2021</i> D. Is delivery address different from item 1? ☐ Yes If YES, enter delivery address below: ☐ No	
2. Article Number (Transfer from service label) 7019 1640 0002 0924 6069		3. Service Type ☐ Adult Signature ☐ Adult Signature Restricted Delivery ☐ Certified Mail® ☐ Certified Mail Restricted Delivery ☐ Collect on Delivery ☐ Collect on Delivery Restricted Delivery ☐ Priority Mail Express® ☐ Registered Mail™ ☐ Registered Mail Restricted Delivery ☐ Signature Confirmation™ ☐ Signature Confirmation Restricted Delivery ☐ d Mail ☐ d Mail Restricted Delivery (over \$500)	

PS Form 3811, July 2020 PSN 7530-02-000-9053

Domestic Return Receipt



US A-11-2 Attachment

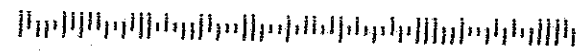
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Permit No. G-10

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Postal Service

• Sender: Please print your name, address, and ZIP+4® in this box•

Department of Environmental Protection
New Stanton District Office
PO Box 133
New Stanton, PA 15672



August 11, 2021

NOTICE OF VIOLATION

CERTIFIED MAIL NO. 7019 1640 0002 0924 6045

East Dunkard Water Authority
Mr. James Holbert
P.O. Box 241
Dilliner, PA 15327

Re: Violation of the Pennsylvania Safe Drinking Water Act and Regulations
East Dunkard Water Authority
PWSID #5300012
Greene County

Dear Mr. Holbert:

On July 20 and 21, 2021, an inspection of the above facility found the following violations:

1. (a) The Department was not notified of the variable speed mixer failure in the clarifier.
(b) 25 PA Code, Chapter 109.701(a)(3)
2. (a) The Department was not notified when the chlorine analyzer at Griffin Tank Entry Point was disabled during the storm on July 17, 2021.
(b) 25 PA Code, Chapter 109.701(a)(3)
3. (a) The system failed to provide filter-to-waste for a full filter until volume after backwashes and filter startup or obtain approval for an alternate method and failed to provide a filter bed evaluation program. Additionally, the system had turbidity spikes in July 2021 with no identifiable cause and numerous turbidity spikes on both CFE and IFE during the past 12 months that reached the set limits of the recording equipment.
(b) 25 PA Code, Chapters 109.4
4. (a) When the chlorine analyzer at the Griffin Tank became inoperable on July 17, 2021, the system failed to collect grab samples every four hours until the analyzer was repaired or replaced.
(b) 25 PA Code, Chapter 109.4

5. (a) The system failed to utilize EPA Method 334.
(b) 25 PA Code, Chapter 109.304(a)
6. (a) The system chronically fails to accurately report hours of operation.
(b) 25 PA Code, Chapter 109.4

The Department has determined that these violations meet the definition of a **significant deficiency** as described in Title 25 PA Code Section 109.1 of the Department's regulations. Regulatory requirements for responding to a significant deficiency at a public water system are contained in Title 25 PA Code Section 109.717. In order to comply with Title 25 PA Code Section 109.717, it is recommended you:

- Consult with the Department regarding the appropriate corrective action for any significant deficiency **within 30 days** of the date of this letter.
- Respond in writing to significant deficiencies **within 45 days** of the date of this letter, indicating how and on what schedule the system will address significant deficiencies.
- Correct all significant deficiencies **within 120 days** of the date of this letter.
- Notify the Department that a significant deficiency has been corrected **within 30 days** of completion of the corrective action.

Any violation of 25 PA Code, Chapter 109.4 or Title 25 PA Code Section 109.717 could result in further enforcement action, including civil and criminal penalties. Each day the violation continues constitutes a separate offense.

This Notice of Violation is neither an order nor any other final action of the Department of Environmental Protection. It neither imposes nor waives any enforcement action available to the Department under any of its statutes. If the Department determines that an enforcement action is appropriate, you will be notified of the action.

If you have any questions concerning this matter, please contact me by e-mail at ernorman@pa.gov or by telephone at 724.925.4525.

Sincerely,



Eric John Norman
Sanitarian
Safe Drinking Water Program

August 23, 2021

NOTICE OF VIOLATION

CERTIFIED MAIL NO. 7019 1640 0002 0924 6090

East Dunkard Water Authority
Mr. James Holbert
P.O. Box 241
Dilliner, PA 15327

Re: Violation of the Pennsylvania Safe Drinking Water Act and Regulations
East Dunkard Water Authority
PWSID #5300012
Greene County

Dear Mr. Holbert:

On August 16, 2021 an administrative inspection of the above system found the following violation(s):

1. (a) The actions and/or inactions of the operators led to the water system experiencing an imminent threat or priority violation; the operator did not check the turbidity data after the alarm went off on August 10, 2021.
(b) 25 PA Code, Chapter 109.4
2. (a) The Department was not notified until 1:04 PM on August 11, 2021 that a primary MCL had been exceeded on August 10, 2021.
(b) 25 PA Code, Chapter 109.4

The Department has determined that these violations meet the definition of a **significant deficiency** as described in Title 25 PA Code Section 109.1 of the Department's regulations. Regulatory requirements for responding to a significant deficiency at a public water system are contained in Title 25 PA Code Section 109.717. In order to comply with Title 25 PA Code Section 109.717, it is recommended you:

- Consult with the Department regarding the appropriate corrective action for any significant deficiency **within 30 days** of the date of this letter.
- Respond in writing to significant deficiencies **within 45 days** of the date of this letter, indicating how and on what schedule the system will address significant deficiencies.

- Correct all significant deficiencies **within 120 days** of the date of this letter.
- Notify the Department that a significant deficiency has been corrected **within 30 days** of completion of the corrective action.

Any violation of 25 PA Code, Chapter 109.4 or Title 25 PA Code Section 109.717 could result in further enforcement action, including civil and criminal penalties. Each day the violation continues constitutes a separate offense.

This Notice of Violation is neither an order nor any other final action of the Department of Environmental Protection. It neither imposes nor waives any enforcement action available to the Department under any of its statutes. If the Department determines that an enforcement action is appropriate, you will be notified of the action.

If you have any questions concerning this matter, please contact me by email at ernorman@pa.gov or by telephone at 724.925.4525.

Sincerely,



Eric John Norman
Sanitarian
Safe Drinking Water Program



September 24, 2021

NOTICE OF VIOLATION

CERTIFIED MAIL NO: 7019 1640 0002 0924 9947

East Dunkard Water Authority
Larry Vincies
P.O. Box 241
Dilliner, PA 15327

Re: Violation of the Pennsylvania Safe Drinking Water Act and Regulations
East Dunkard Water Authority
PWSID #5300012
Dilliner, Greene County

Dear Larry Vincies,

On August 30 and 31, and September 2, 7, and 9, 2021 a routine complete inspection of the above system found the following violations:

1. (a) The water system failed to provide 1-hour notification to the Department informing them that a priority violation exists relating to the conventional filtration; the water system failed to notify the Department within 1 hour of turbidity exceedances on August 10, 2021.
(b) 25 Pa. Code 109.701(a)(3).
2. (a) The water system failed to comply with an Order issued by Department; the water system violated Field Order #53-21-1627-022 for failure to provide entry point chlorine for August 20-23, 2021, for not including "any relevant events or factors which affect sample results, such as backwashes or calibrations...clearly indicated on these data submissions;" for operating without personnel prior to alarm verification; and for not providing SOPs for Tier 1 Public Notices and 1-hour notifications.
(b) 25 Pa. Code 109.4(4).
3. (a) Violations exist that are deemed to be a significant deficiency relating to the treatment plant or treatment processes; the staff has not been properly trained how to use SCADA.
(b) 25 Pa. Code 109.4.
4. (a) Violations exist that are deemed to be a significant deficiency relating to the conventional filtration treatment; there is a significant lack of waste-holding capacity, there are mud balls forming on the filter, the media is uneven and the sand and

anthracite have mixed, the CFE turbidimeter remains in the wrong location, and the backwashing SOP is insufficient.

(b) Pa. Code 109.4.

5. (a) Violations exist that are deemed to be a significant deficiency relating to the chlorine treatment; there is no reliable fan in the chlorine room and no leak-detection alarm; there is no SCBA for the gas chlorine; a face mask with cartridge filters is used instead of an SCBA, but the location of additional cartridges is unknown; CT parameters are not collected at the end of the disinfection segment; and an SOP for changing chlorine cylinders is absent.
- (b) 25 Pa. Code 109.4.

The Department has determined that these violations meet the definition of a **significant deficiency** as described in Title 25 PA Code Section 109.1 of the Department's regulations. Regulatory requirements for responding to a significant deficiency at a public water system are contained in Title 25 PA Code Section 109.717. In order to comply with Title 25 PA Code Section 109.717, it is recommended you:

- Consult with the Department regarding the appropriate corrective action for any significant deficiency **within 30 days** of the date of this letter.
- Respond in writing to significant deficiencies **within 45 days** of the date of this letter, indicating how and on what schedule the system will address significant deficiencies.
- Correct all significant deficiencies **within 120 days** of the date of this letter.
- Notify the Department that a significant deficiency has been corrected **within 30 days** of completion of the corrective action.

Any violation of 25 PA Code, Chapter 109.4 or Title 25 PA Code Section 109.717 could result in further enforcement action, including civil and criminal penalties. Each day the violation continues constitutes a separate offense.

This Notice of Violation is neither an order nor any other final action of the Department of Environmental Protection. It neither imposes nor waives any enforcement action available to the Department under any of its statutes. If the Department determines that an enforcement action is appropriate, you will be notified of the action.

If you have any questions concerning this matter, please contact me by e-mail at ernorman@pa.gov or by telephone at 724.925.4525.

Sincerely,



Eric John Norman
Sanitarian
Safe Drinking Water Program



October 28, 2021

NOTICE OF VIOLATION

CERTIFIED MAIL NO. 7019 1640 0002 0924 5079

East Dunkard Water Authority
Mr. Larry Vincies
P.O. Box 241
Dilliner, PA 15327

Re: Violation of the Pennsylvania Safe Drinking Water Act and Regulations
East Dunkard Water Authority
PWSID #5300012
Greene County

Dear Mr. Vincies:

Section 708(a)(3) of the Safe Drinking Water Regulations, 25 Pa. Code § 109.708(a)(3), requires community water suppliers serving 10,000 persons or more to submit to the Department a certification, on a certification form provided by the Department, verifying completion of the Uninterrupted System Service Plan (USSP) by August 17, 2021.

The USSP must be completed on the USSP forms provided by the Department and maintained by the system to ensure that safe and potable water is continuously supplied to users.

The Department has conducted a review of the records of the East Dunkard Water Authority public water system and has determined that East Dunkard Water Authority failed to develop and/or submit a USSP Certification Form to the Department by August 17, 2021.

In order to regain compliance with the PA Safe Drinking Water Regulations, the Department requests that East Dunkard Water Authority develop a USSP and submit the USSP Certification Form to the Department by November 30, 2021. Templates for the USSP Form can be found at <http://www.depgreenport.state.pa.us/elibrary/GetFolder?FolderID=54646>. Templates for the USSP Certification Form can be found at <http://www.depgreenport.state.pa.us/elibrary/GetFolder?FolderID=54647>.

This letter is only intended to inform you of the existence of a **violation** and of the ways in which you may move into compliance with the law. It neither imposes nor waives any

Mr. Larry Vincies

-2-

October 28, 2021

enforcement action available to the Department under any of its statutes. If the Department determines that an enforcement action is appropriate, you will be notified of the action.

This Notice of Violation is neither an order nor any other final action of the Department of Environmental Protection.

If you have any questions concerning this matter, please contact me by email at ernorman@pa.gov or by telephone at 724.925.4525.

Sincerely,

A handwritten signature in dark ink, appearing to read "Eric John Norman", is written over a circular, slightly wavy line that serves as a guide for the signature's placement.

Eric John Norman
Sanitarian
Safe Drinking Water Program



November 2, 2021

NOTICE OF VIOLATION

CERTIFIED MAIL NO. 7019 1640 0002 0924 5109

East Dunkard Water Authority
 Larry Vincies
 P.O. Box 241
 Dilliner, PA 15327

Re: Violation of the Pennsylvania Safe Drinking Water Act and Regulations
 East Dunkard Water Authority
 PWSID #5300012
 Greene County

Dear Mr. Vincies:

The Safe Drinking Water Act requires any person that operates a public water system to test the water for certain contaminants on a routine basis and issue public notification (PN) to the consumers whenever the water fails to meet Pennsylvania standards or whenever there is a failure to have the testing performed on time. A review of our records indicates that you have either failed to have certain water tests performed on time, or your laboratory has not submitted the test results to this office.

Our records indicate that you did not sample and/or report your drinking water correctly for free chlorine during the June 2021, August 2021, and September 2021 monitoring periods. Failure to conduct required monitoring is a violation of Title 25 Pa. Code, Chapter 109.

A Tier 3 Public Notification (PN) should be issued within one year of each violation date in accordance with Chapter 109, Subchapter D, Public Notification. Public Notice should be issued in accordance with Sections 109.407, 109.410 and 109.411 of Title 25 of the Pennsylvania Code.

To assure your compliance with the Safe Drinking Water Act, the Department requests that you complete the following activities:

1. If you did conduct this monitoring as required, submit the results to DEP as soon as possible. Please note that failure to report monitoring results within 10 days of the end of the monitoring period is a violation of Title 25 Pa. Code, Chapter 109.701(a)(1) and 109.810(a).
2. If you did not conduct this monitoring as required, issue a PN to your customers within one calendar year of each violation date. Once the PN is issued, complete the attached PN certification form and submit it, along with a copy of your PN, to this office within 10 days of issuing the PN in accordance with Section 109.701(a)(4) of Title 25 of the

November 1, 2021

Pennsylvania Code. Enclosed is a copy of a Tier 3 PN template that you can complete and deliver to each customer and/or employee.

This Notice of Violation is neither an order nor any other final action of the Department of Environmental Protection. It neither imposes nor waives any enforcement action available to the Department under any of its statutes. If the Department determines that an enforcement action is appropriate, you will be notified of the action.

If you have any questions regarding this information, please contact me at 724.925.5424 or via email at ernorman@pa.gov.

Sincerely,

A handwritten signature in dark ink, appearing to read "Eric John Norman", is written over a circular stamp or seal.

Eric John Norman
Sanitarian
Safe Drinking Water Program

Enclosures: Instructions 3930-FM-BSDW0196a
Form 3930-FM-BSDW0196b

December 13, 2021

NOTICE OF VIOLATION

CERTIFIED MAIL NO. 7019 1640 0002 0924 5253

East Dunkard Water Authority
Larry Vincies
P.O. Box 241
Dilliner, PA 15327

Re: Violation of the Pennsylvania Safe Drinking Water Act and Regulations
East Dunkard Water Authority
PWSID #5300012
Greene County

Dear Mr. Vincies:

On August 11, 2021, the Department notified you that the following violation met the definition of a **significant deficiency**:

1. (a) The system failed to provide filter-to-waste for a full filter until volume after backwashes and filter startup or obtain approval for an alternate method and failed to provide a filter bed evaluation program. Additionally, the system had turbidity spikes in July 2021 with no identifiable cause, and numerous turbidity spikes on both CFE and IFE during the past 12 months which reached the set limits of the recording equipment.
(b) 25 PA Code, Chapters 109.4
2. (a) The system failed to utilize EPA Method 334.
(b) 25 PA Code, Chapter 109.304(a)
3. (a) The system chronically fails to accurately report hours of operation.
(b) 25 PA Code, Chapter 109.4

Title 25 Pa. Code Section 109.717 requires public water systems to correct significant deficiencies within 120 days of being notified in writing by the Department, which means the significant deficiencies were to be corrected by December 10, 2021.

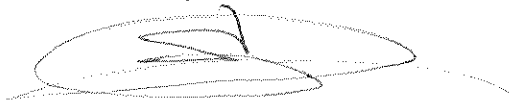
Failure to correct a significant deficiency within 120 days violates Section 109.717. To assure your system is in compliance with the Safe Drinking Water Act requirements, the Department requests that you complete the following activities:

1. Correct the significant deficiency specified above and notify the Department when completed.
2. **Issue a Tier 2 public notice within thirty (30) days of receipt of this Notice. Public Notice should be issued in accordance with Sections 109.407, 109.409 and 109.411.**
3. Submit a certification that the public notification requirements have been fulfilled and a copy of the notice to this office within ten (10) days of issuing the public notice in accordance with 40 CFR 141.31(d) and Section 109.701(a)(4) of Title 25 of the Pennsylvania Code. Enclosed is a copy of a Tier 2 Public Notification template and a blank certification form.

This Notice of Violation is neither an order nor any other final action of the Department of Environmental Protection. It neither imposes nor waives any enforcement action available to the Department under any of its statutes. If the Department determines that an enforcement action is appropriate, you will be notified of the action.

If you have any questions concerning this matter, please contact me by e-mail at ernorman@pa.gov or by telephone 724.925.5425.

Sincerely,



Eric Norman
Sanitarian
Safe Drinking Water Program

Enclosures
Form 3930-FM-BSDW0155

Tier 2 Public Notice

FAILURE TO COMPLETE SIGNIFICANT DEFICIENCY CORRECTIVE ACTIONS

A system's failure to take corrective action within the required timeframe or be in compliance with a state-approved corrective action plan and schedule for a significant deficiency is a treatment technique violation and requires Tier 2 notification. You must provide public notice to persons served as soon as practical but within 30 days after you learn of the violation. You must issue a repeat notice every three months for as long as the violation persists.

Community systems must use one of the following methods:

- Hand or direct delivery
- Mail, as a separate notice or included with the bill

Noncommunity systems must use one of the following methods:

- Posting in conspicuous locations
- Hand delivery
- Mail

In addition, both community and noncommunity systems must use *another* method reasonably calculated to reach others if they would not be reached by the first method. Such methods could include newspapers, e-mail, or delivery to community organizations. If you mail, post, or hand deliver, print your notice on your system's letterhead, if available.

The notice on the reverse is appropriate for mailing, posting, or hand delivery. If you modify this notice, you must still include all required PN elements and leave the mandatory language unchanged (see below).

Mandatory Language

Mandatory language on health effects and special notice language must be included as written (with blanks filled in) and are presented in this notice in italics and with an asterisk on either end.

You must also include standard language to encourage the distribution of the public notice to all persons served. This language is also presented in this notice in italics and with an asterisk on either end.

Corrective Action

In your notice, describe corrective actions you are taking. Listed below are some steps commonly taken by water systems with treatment technique violations. Depending on the corrective action you are taking, you can use one or more of the following statements, if appropriate, or develop your own text:

- Although we did not meet our deadline, we are now in consultation with the state to develop a corrective action plan.
- The significant deficiency has been identified and addressed.
- We have implemented a short term plan to address the immediate issue while we pursue the long-term solution.

PN Certification

Send a copy of each type of notice and the certification form (3930-FM-BSDW0076) to DEP within ten days after you issued the notice.

Template Form Field Instructions

When you place your cursor in the blank form fields in the following template, look at the bottom, left corner of your computer (just above the START button) for instructions on the information you should enter in that field. For example, if you place your cursor over the first blank form field in the template, the instructions will read "Insert system name."

FAILURE TO COMPLETE SIGNIFICANT DEFICIENCY CORRECTIVE ACTIONS**IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER**

ESTE INFORME CONTIENE INFORMACIÓN IMPORTANTE ACERCA DE SU AGUA POTABLE. HAGA QUE ALGUIEN LO TRADUZCA PARA USTED, O HABLE CON ALGUIEN QUE LO ENTIENDA.

_____ recently violated a drinking water requirement. Although this is not an emergency, as our customers, you have a right to know what happened, what you should do, and what we did (are doing) to correct this situation.

A routine inspection conducted on _____ by the DEP found _____

We were required to take action to correct this deficiency. However, we failed to take this action by the deadline established by DEP.

What should I do?

- There is nothing you need to do. You do not need to boil your water or take other corrective actions. However, if you have specific health concerns, consult your doctor.
- If you have a severely compromised immune system, have an infant, are pregnant, or are elderly, you may be at increased risk and should seek advice from your health care providers about drinking this water. General guidelines on ways to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from EPA's Safe Drinking Water Hotline at 1-800-426-4791.

What does this mean?

This is not an emergency. If it had been, you would have been notified within 24 hours.

Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites which can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.

These symptoms, however, are not caused only by organisms in drinking water, but also by other factors. If you experience any of these symptoms and they persist, you may want to seek medical advice.

What is being done?

We anticipate resolving the problem within _____ (or the problem was resolved on _____).

For more information, please call _____ of _____
at _____

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

This notice is being sent to you by _____.

PWS ID #: _____

Date distributed: _____

January 21, 2022

NOTICE OF VIOLATION

CERTIFIED MAIL NO. 7020 2450 0001 5246 5038

East Dunkard Water Authority
Jerry Dorsey
P.O. Box 241
Dilliner, PA 15327

Re: Violation of the Pennsylvania Safe Drinking Water Act and Regulations
East Dunkard Water Authority
PWSID No. 5300012
Greene County

Dear Mr. Dorsey:

On January 18, 2022 a routine partial inspection of the above system found the following violation:

1. (a) The water system is chronically failing to test alarm and shutdown capabilities.
(b) 25 Pa. Code 109.703(c)

The Department has determined that this violation meets the definition of a **significant deficiency** as described in Title 25 PA Code Section 109.1 of the Department's regulations. Regulatory requirements for responding to a significant deficiency at a public water system are contained in Title 25 PA Code Section 109.717. In order to comply with Title 25 PA Code Section 109.717, it is recommended you:

- Consult with the Department regarding the appropriate corrective action for any significant deficiency **within 7 days** of the date of this letter.
- Respond in writing to significant deficiencies **within 15 days** of the date of this letter, indicating how and on what schedule the system will address significant deficiencies.
- Correct all significant deficiencies **within 30 days** of the date of this letter.
- Notify the Department that a significant deficiency has been corrected **within 30 days** of completion of the corrective action.

Any violation of 25 PA Code, Chapter 109.4 or Title 25 PA Code Section 109.717 could result in further enforcement action, including civil and criminal penalties. Each day the violation continues constitutes a separate offense.

East Dunkard Water Authority

-2-

January 21, 2022

This Notice of Violation is neither an order nor any other final action of the Department of Environmental Protection. It neither imposes nor waives any enforcement action available to the Department under any of its statutes. If the Department determines that an enforcement action is appropriate, you will be notified of the action.

If you have any questions concerning this matter, please contact me by e-mail at ernorman@pa.gov or by telephone at 724.925.4525.

Sincerely,

A handwritten signature in black ink, appearing to read "Eric John Norman", enclosed within a hand-drawn oval.

Eric John Norman
Sanitarian
Safe Drinking Water Program

January 21, 2022

NOTICE OF VIOLATION

CERTIFIED MAIL NO. 7020 2450 0001 5246 5038

East Dunkard Water Authority
Jerry Dorsey
P.O. Box 241
Dilliner, PA 15327

Re: Violation of the Pennsylvania Safe Drinking Water Act and Regulations
East Dunkard Water Authority
PWSID No. 5300012
Greene County

Dear Jerry Dorsey:

Chapter 109. Safe Drinking Water, Subchapter C. Monitoring Requirements §109.301(12)(v), requires a community water system using conventional filtration to monitor for disinfection byproduct (DBP) precursors in accordance with 40 CFR 141.135(b)(1). Unless a system can meet alternate compliance criteria, systems must meet the percent reduction of TOC specified in 40 CFR 141.135(b)(2). Our records indicate that East Dunkard Water Authority did not meet this requirement for the 3rd calendar quarter (July-September) of 2021 since the removal ratio was calculated as less than 1.0 and no alternative compliance criteria was met; this constitutes a treatment technique violation of 40 CFR 141.135(c)(v).

To assure your compliance with the Safe Drinking Water Act, the Department requests that you complete the following activities:

1. Issue a Tier 2 public notice (PN) within thirty (30) days. Public Notification should be issued in accordance with Sections 109.407, 109.409 and 109.411 of Title 25 of the Pennsylvania Code. Submit a certification that the public notification requirements have been fulfilled and a copy of the notice to this office within 10 days of issuing the public notice in accordance with Section 109.701(a)(4) of Title 25 of the Pennsylvania Code.

As of January 21, 2022, the Department has not received a Tier 2 public notice or a Certification Form. **Please issue the PN within seven (7) days of receipt of this Notice of Violation.** A public notice template will be attached. Then, submit a certification form that the public notification requirements have been fulfilled and a copy of the notice to this office within 10 days of issuing the public notice. A certification form will be attached.

This Notice of Violation is neither an order nor any other final action of the Department of Environmental Protection. It neither imposes nor waives any enforcement action available to the Department under any of its statutes. If the Department determines that an enforcement action is appropriate, you will be notified of the action.

If you have any questions concerning this matter, please contact me by e-mail at ernorman@pa.gov or by telephone at 724.925.5425.

Sincerely,

A handwritten signature in black ink, appearing to be "Eric Norman", enclosed within a hand-drawn oval.

Eric Norman
Sanitarian
Safe Drinking Water Program

Enclosures:
Form 3800-FM-WSFR0195
Form 3930-FM-BSDW0076



PUBLIC NOTIFICATION (PN) CERTIFICATION FORM

Public Water System Name: _____ PWSID Number: _____

Date of Violation/Situation: _____

Description of Violation/Situation: _____

Notified DEP (or CHD) within 1 hour

Date or NA: _____

Consulted with DEP within 24 hours

Date or NA: _____

 PN Level: ☐ Tier 1 ☐ Tier 2 ☐ Tier 3

 Type of notice addressed by this certification: ☐ Initial ☐ Repeat

Methods and date of public notice deliveries to customers:

Method: _____ Date: _____

Method: _____ Date: _____

Method: _____ Date: _____

Method: _____ Date: _____

☐ The public notice included the required elements: a description of the violation/situation; potential health effects; the population at risk; if alternate water supplies need to be used; when the violation/situation occurred; when the system will resolve the violation/situation; what is being done to correct the problem; actions consumers can take; water system contact information; and language encouraging broader distribution of the notice.

☐ A copy of each type of notice that was distributed is attached to this certification form

Certified by:

As a representative of the Public Water System (PWS) indicated above, I certify that public notification addressing the above violation/situation was distributed to all customers in accordance with the prescribed content, format, deadlines and delivery requirements outlined in Chapter 25 Pa. Code Chapter 109 Subchapter D of the Department of Environmental Protection (DEP)'s regulations.

Signature: _____ Date: _____

Print Name and Title: _____

Phone Number: _____

Complete and submit this form to your local DEP office **within 10 days** of issuing the public notification described above. DEP District Office and County Health Department contact information can be found within DEP document number 3930-FM-BSDW0560, which can be located by searching for document number 3930-FM-BSDW0560 in DEP's eLibrary at the following link: <http://www.depgreenport.state.pa.us/elibrary/Search>.

For DEP use only. Checked by: _____ Date: _____

IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER

ESTE INFORME CONTIENE INFORMACIÓN IMPORTANTE ACERCA DE SU AGUA POTABLE. HAGA QUE ALGUIEN LO TRADUZCA PARA USTED, O HABLE CON ALGUIEN QUE LO ENTIENDA.

_____ **Has Violated a Treatment Technique**

Our water system recently violated a drinking water standard. Although this was not an emergency, as our customers, you have a right to know what happened, what you should do, and what we are doing to correct this situation.

We routinely monitor your water for the presence of drinking water contaminants. Testing results we received on September 2011 show that our system did not meet the requirements for the removal of total organic carbon (TOC). The standard for TOC is a removal ratio running annual average (computed quarterly) of 1.0. Removal ratio is the TOC removal achieved divided by the required TOC removal. The 3rd quarter running annual average TOC removal ratio was 0.981. See table below.

Contaminant	Required Running Annual Average for Ratio of Removal	Achieved Running Annual Average for Ratio of Removal	Quarter out of Compliance	Expected Return to Compliance Date
TOC		_____	_____	_____

* Although we were in quarterly compliance during the fourth quarter of 2011, our running annual average compliance is not expected to be attained for a couple more quarters.

What should I do?

- **You do not need to use an alternative (i.e., bottled water) water supply.** However, if you have specific health concerns, consult your doctor.

What does this mean?

- **This is not an immediate risk. If it had been, you would have been notified immediately.**

Total organic carbon provides a medium for the formation of disinfection byproducts. These byproducts include trihalomethanes (TTHMs) and haloacetic acids (HAAs). Drinking water containing these byproducts in excess of the MCL over long periods of time may lead to adverse health effects, liver or kidney problems, or nervous system effects, and may lead to an increased risk of getting cancer. However, the levels for TTHMs and HAA5s were in compliance during this time frame.

What happened? What was done?

_____. We anticipate resolving the problem within _____.

For more information, please contact _____ at _____.

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

This notice is being sent to you by _____.

PWS ID#: _____ Date distributed: _____

January 21, 2022

NOTICE OF VIOLATION

CERTIFIED MAIL NO. 7020 2450 0001 5246 5038

East Dunkard Water Authority
Jerry Dorsey
P.O. Box 241
Dilliner, PA 15327

Re: Violation of the Pennsylvania Safe Drinking Water Act and Regulations
East Dunkard Water Authority
PWSID No. 5300012
Greene County

Dear Mr. Dorsey:

On September 24, 2021, the Department notified you that the following violations met the definition of a **significant deficiency**:

1. (a) The water system failed to comply with an Order issued by Department; the water system violated Field Order No. 53-21-1627-022 for failure to provide entry point chlorine for August 20-23, 2021, for not including "any relevant events or factors which affect sample results, such as backwashes or calibrations...clearly indicated on these data submissions," for operating without personnel prior to alarm verification, and for not providing SOPs for Tier 1 Public Notices and 1-hour notifications.
(b) 25 Pa. Code 109.4(4).
2. (a) Violations exist that are deemed to be a significant deficiency relating to the conventional filtration treatment; there is a significant lack of waste-holding capacity, there are mud balls forming on the filter, the media is uneven and the sand and anthracite have mixed, the CFE turbidimeter remains in the wrong location, and the backwashing SOP is insufficient.
(b) Pa. Code 109.4.
3. (a) Violations exist that are deemed to be a significant deficiency relating to the chlorine treatment; there is no reliable fan in the chlorine room and no leak-detection alarm, there is no sufficient SCBA for the gas chlorine, a face mask with cartridge filters is used instead of an SCBA but the location of additional cartridges is unknown, and an SOP for changing chlorine cylinders is absent.
(b) 25 Pa. Code 109.4.

Title 25 Pa. Code Section 109.717 requires public water systems to correct significant deficiencies within 120 days of being notified in writing by the Department, which means the significant deficiencies were to be corrected by January 21, 2022.

Failure to correct a significant deficiency within 120 days violates Section 109.717. To assure your system is in compliance with the Safe Drinking Water Act requirements, the Department requests that you complete the following activities:

1. Correct the significant deficiency specified above and notify the Department when completed.
2. **Issue a Tier 2 public notice within thirty (30) days of receipt of this Notice. Public Notice should be issued in accordance with Sections 109.407, 109.409 and 109.411.**
3. Submit a certification that the public notification requirements have been fulfilled and a copy of the notice to this office within ten (10) days of issuing the public notice in accordance with 40 CFR 141.31(d) and Section 109.701(a)(4) of Title 25 of the Pennsylvania Code. Enclosed is a copy of a Tier 2 Public Notification template and a blank certification form.

This Notice of Violation is neither an order nor any other final action of the Department of Environmental Protection. It neither imposes nor waives any enforcement action available to the Department under any of its statutes. If the Department determines that an enforcement action is appropriate, you will be notified of the action.

If you have any questions concerning this matter, please contact me by e-mail at ernorman@pa.gov or by telephone at 724.925.5425.

Sincerely,



Eric Norman
Sanitarian
Safe Drinking Water Program

Enclosures
Form 3930-FM-BSDW0155
Form 3930-FM-BSDW0076



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF SAFE DRINKING WATER

Tier 2 Public Notice

FAILURE TO COMPLETE SIGNIFICANT DEFICIENCY CORRECTIVE ACTIONS

A system's failure to take corrective action within the required timeframe or be in compliance with a state-approved corrective action plan and schedule for a significant deficiency is a treatment technique violation and requires Tier 2 notification. You must provide public notice to persons served as soon as practical but within 30 days after you learn of the violation. You must issue a repeat notice every three months for as long as the violation persists.

Community systems must use one of the following methods:

- Hand or direct delivery
- Mail, as a separate notice or included with the bill

Noncommunity systems must use one of the following methods:

- Posting in conspicuous locations
- Hand delivery
- Mail

In addition, both community and noncommunity systems must use *another* method reasonably calculated to reach others if they would not be reached by the first method. Such methods could include newspapers, e-mail, or delivery to community organizations. If you mail, post, or hand deliver, print your notice on your system's letterhead, if available.

The notice on the reverse is appropriate for mailing, posting, or hand delivery. If you modify this notice, you must still include all required PN elements and leave the mandatory language unchanged (see below).

Mandatory Language

Mandatory language on health effects and special notice language must be included as written (with blanks filled in) and are presented in this notice in italics and with an asterisk on either end.

You must also include standard language to encourage the distribution of the public notice to all persons served. This language is also presented in this notice in italics and with an asterisk on either end.

Corrective Action

In your notice, describe corrective actions you are taking. Listed below are some steps commonly taken by water systems with treatment technique violations. Depending on the corrective action you are taking, you can use one or more of the following statements, if appropriate, or develop your own text:

- Although we did not meet our deadline, we are now in consultation with the state to develop a corrective action plan.
- The significant deficiency has been identified and addressed.
- We have implemented a short term plan to address the immediate issue while we pursue the long-term solution.

PN Certification

Send a copy of each type of notice and the certification form (3930-FM-BSDW0076) to DEP within ten days after you issued the notice.

Template Form Field Instructions

When you place your cursor in the blank form fields in the following template, look at the bottom, left corner of your computer (just above the START button) for instructions on the information you should enter in that field. For example, if you place your cursor over the first blank form field in the template, the instructions will read "Insert system name."

FAILURE TO COMPLETE SIGNIFICANT DEFICIENCY CORRECTIVE ACTIONS**IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER**

ESTE INFORME CONTIENE INFORMACIÓN IMPORTANTE ACERCA DE SU AGUA POTABLE. HAGA QUE ALGUIEN LO TRADUZCA PARA USTED, O HABLE CON ALGUIEN QUE LO ENTIENDA.

_____ recently violated a drinking water requirement. Although this is not an emergency, as our customers, you have a right to know what happened, what you should do, and what we did (are doing) to correct this situation.

A routine inspection conducted on _____ by the DEP found _____

We were required to take action to correct this deficiency. However, we failed to take this action by the deadline established by DEP.

What should I do?

- There is nothing you need to do. You do not need to boil your water or take other corrective actions. However, if you have specific health concerns, consult your doctor.
- If you have a severely compromised immune system, have an infant, are pregnant, or are elderly, you may be at increased risk and should seek advice from your health care providers about drinking this water. General guidelines on ways to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from EPA's Safe Drinking Water Hotline at 1-800-426-4791.

What does this mean?

This is not an emergency. If it had been, you would have been notified within 24 hours.

Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites which can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.

These symptoms, however, are not caused only by organisms in drinking water, but also by other factors. If you experience any of these symptoms and they persist, you may want to seek medical advice.

What is being done?

We anticipate resolving the problem within _____ (or the problem was resolved on _____).

For more information, please call _____ of _____
at _____

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

This notice is being sent to you by _____.

PWS ID #: _____

Date distributed: _____



PUBLIC NOTIFICATION (PN) CERTIFICATION FORM

Public Water System Name: _____ PWSID Number: _____

Date of Violation/Situation: _____

Description of Violation/Situation: _____

Notified DEP (or CHD) within 1 hour

Date or NA: _____

Consulted with DEP within 24 hours

Date or NA: _____

PN Level: ☐ Tier 1 ☐ Tier 2 ☐ Tier 3

Type of notice addressed by this certification: ☐ Initial ☐ Repeat

Methods and date of public notice deliveries to customers:

Method: _____ Date: _____

Method: _____ Date: _____

Method: _____ Date: _____

Method: _____ Date: _____

- ☐ The public notice included the required elements: a description of the violation/situation; potential health effects; the population at risk; if alternate water supplies need to be used; when the violation/situation occurred; when the system will resolve the violation/situation; what is being done to correct the problem; actions consumers can take; water system contact information; and language encouraging broader distribution of the notice.

- ☐ A copy of each type of notice that was distributed is attached to this certification form

Certified by:

As a representative of the Public Water System (PWS) indicated above, I certify that public notification addressing the above violation/situation was distributed to all customers in accordance with the prescribed content, format, deadlines and delivery requirements outlined in Chapter 25 Pa. Code Chapter 109 Subchapter D of the Department of Environmental Protection (DEP)'s regulations.

Signature: _____ Date: _____

Print Name and Title: _____

Phone Number: _____

Complete and submit this form to your local DEP office **within 10 days** of issuing the public notification described above. DEP District Office and County Health Department contact information can be found within DEP document number 3930-FM-BSDW0560, which can be located by searching for document number 3930-FM-BSDW0560 in DEP's eLibrary at the following link: <http://www.depgreenport.state.pa.us/elibrary/Search>.

For DEP use only. Checked by: _____ **Date:** _____



January 31, 2022

NOTICE OF VIOLATION

CERTIFIED MAIL NO. 7019 1640 0002 0924 6212

East Dunkard Water Authority
Jerry Dorsey
P.O. Box 241
Dilliner, PA 15327

Re: Violation of the Pennsylvania Safe Drinking Water Act and Regulations
East Dunkard Water Authority
PWSID No. 5300012
Greene County

Dear Mr. Dorsey:

On January 25, 2022 a routine partial inspection of the above system found the following violations:

1. (a) Circumstances exist with the conventional filtration treatment that adversely affect the quantity or quality of the water being produced.
(b) 25 Pa. Code 109.4
2. (a) The water system is failing to provide at least 1.0 log inactivation of Giardia for more than 4 hours at the entry point
(b) 25 Pa. Code 109.202(c)
3. (a) The public water supplier failed to provide 1-hour notification to DEP informing them of an imminent threat situation that is occurring with the conventional filtration treatment.
(b) 25 Pa. Code 109.701(A)(3)

On January 26, 2022 administrative inspection 3312206 of the above system found the following violation:

1. (a) The water system failed to comply with an Order issued by DEP.
(b) 25 Pa. Code 109.4(4)

On January 26, 2022 administrative inspection 3312456 of the above system found the following violation:

1. (a) The water system failed to comply with an Order issued by DEP.
(b) 25 Pa. Code 109.4(4)

On January 31, 2022 administrative inspection 3314106 of the above system found the following violation:

1. (a) The water system failed to comply with an Order issued by DEP.
(b) 25 Pa. Code 109.4(4)

The Department has determined that this violation meets the definition of a **significant deficiency** as described in Title 25 PA Code Section 109.1 of the Department's regulations. Regulatory requirements for responding to a significant deficiency at a public water system are contained in Title 25 PA Code Section 109.717. In order to comply with Title 25 PA Code Section 109.717, it is recommended you:

- Consult with the Department regarding the appropriate corrective action for any significant deficiency **within 30 days** of the date of this letter.
- Respond in writing to significant deficiencies **within 45 days** of the date of this letter, indicating how and on what schedule the system will address significant deficiencies.
- Correct all significant deficiencies **within 120 days** of the date of this letter.
- Notify the Department that a significant deficiency has been corrected **within 30 days** of completion of the corrective action.

Any violation of 25 PA Code, Chapter 109.4 or Title 25 PA Code Section 109.717 could result in further enforcement action, including civil and criminal penalties. Each day the violation continues constitutes a separate offense.

This Notice of Violation is neither an order nor any other final action of the Department of Environmental Protection. It neither imposes nor waives any enforcement action available to the Department under any of its statutes. If the Department determines that an enforcement action is appropriate, you will be notified of the action.

If you have any questions concerning this matter, please contact me by e-mail at ernorman@pa.gov or by telephone at 724.925.4525.

Sincerely,



Eric John Norman
Sanitarian
Safe Drinking Water Program



August 2, 2022

NOTICE OF VIOLATION

Via Certified Mail No. 7019 1120 0002 0678 3445

East Dunkard Water Authority
2790 South Eighty-Eight Road
Dilliner PA 15327

AND

East Dunkard Water Association
2790 South Eighty-Eight Road
Dilliner PA 15327

Re: Violations of the Pennsylvania Safe Drinking Water Act and Regulations
Violations of DEP March 21, 2022 Administrative Order
East Dunkard Water Authority and East Dunkard Water Association
PWSID No. 5300012
Greene County

Dear Sir and/or Madam:

On March 21, 2022 the Pennsylvania Department of Environmental Protection (Department) issued an Administrative Order (Order) to the East Dunkard Water Authority and the East Dunkard Water Association (collectively, East Dunkard) regarding violations of the Lead and Copper Rule at East Dunkard's public water system. The Order required East Dunkard to conduct its first round of initial lead and copper tap sampling at 40 sites within its distribution system no later than June 30, 2022. Prior to conducting the sampling, the Order required East Dunkard to complete a materials evaluation for its system and submit a revised sample site location plan to identify a sufficient number of priority lead and copper tap sampling sites as required under Section 109.1103(g) of the Department's regulations, 25 Pa. Code § 109.1103(g).

East Dunkard failed to complete an adequate materials evaluation to identify a sufficient number of priority lead and copper tap sampling sites. Instead, East Dunkard submitted to the Department a revised sample site location plan that included multiple lower tier sites without demonstrating that additional higher priority sites did not exist. Following multiple requests from the Department for revisions to the plan, East Dunkard has not submitted an adequate materials evaluation and sample site location plan to the Department to date.

East Dunkard Water Authority
East Dunkard Water Association

2

August 2, 2022

Additionally, because it failed to complete an adequate materials evaluation and sample site location plan, East Dunkard failed to conduct its first round of initial lead and copper tap sampling at 40 sites of the highest available priority within its distribution system no later than June 30, 2022. The results for the lead and copper tap sampling East Dunkard did conduct were not submitted to the Department by July 10, 2022, nor have they been submitted to the Department as of the date of this Notice of Violation. The Department requests that East Dunkard have its certified laboratory submit the sample results to the Department no later than August 10, 2022.

East Dunkard's failure to comply with the Department's March 21, 2022 Order was a violation of Section 13(a) of the Safe Drinking Water Act, 35 P.S. § 721.13(a). To come into compliance with the law, East Dunkard is requested to do the following in accordance with the requirements of 25 Pa. Code § 109.1103 and the Department's Order: complete an adequate materials evaluation; submit a revised sample site location plan; and conduct all future lead and copper tap sampling as required under the Order and submit the results to the Department within either the first 10 days following the month in which the result is received or the first 10 days following the end of the required monitoring period, whichever is shorter. The Department requests that East Dunkard complete the materials evaluation and submit a revised sample site location plan by September 1, 2022.

By way of further guidance with respect to the materials evaluation and sample site location plan, East Dunkard is requested to continue with its materials evaluation and further revise its sample site location plan until either: 1) a sufficient number of tier 1 locations (40) is identified; or 2) East Dunkard has confirmed through evaluation of all single family residences that no additional tier 1 locations exist. If the latter of these occurs, then East Dunkard is requested to perform the same evaluation for all potential tier 2 locations to get to 40 sample sites before it would include any tier 3 locations in its sample site location plan.

Any violation of the Pennsylvania Safe Drinking Water Act, 35 P.S. §§ 721.1-721.17, or the regulations at Title 25 Pa. Code Chapter 109 subjects a person to a variety of potential enforcement actions, including civil and criminal penalties. Each day the violation continues constitutes a separate offense.

This Notice of Violation is neither an order nor any other final action of the Department. It neither imposes nor waives any enforcement action available to the Department under any of its statutes. If the Department determines that an enforcement action is appropriate, you will be notified of the action.

East Dunkard Water Authority
East Dunkard Water Association

3

August 2, 2022

If you have any questions regarding this information, please contact me at 724-925-5504 or via email at gguenther@pa.gov.

Sincerely,

Gail Guenther

Gail Guenther
Environmental Protection Compliance Specialist
Safe Drinking Water Program
Southwest Regional Office

c: Region



August 23, 2022

NOTICE OF VIOLATION

CERTIFIED MAIL NO. 7020 2450 0001 5246 7988

East Dunkard Water Authority
P.O. Box 241
Dilliner, PA 15327

Re: Violation of the Pennsylvania Safe Drinking Water Act and Regulations
East Dunkard Water Authority
PWSID No. 5300012
Greene County

Dear Sir and/or Madam:

On August 3, 2022, a follow-up inspection of the above facility found multiple violations including the following:

1. (a) Mudballs or other debris are visible on top the filter media.
(b) 25 PA Code, Chapter 109.4
2. (a) Floc carry over onto the filters is visible without the aid of a spotlight.
(b) 25 PA Code, Chapters 109.4
3. (a) The clarifier is not functioning properly.
(b) 25 PA Code, Chapter 109.4
4. (a) The backwash flow does not appear even across the entire filter bed.
(b) 25 PA Code, Chapter 109.4

This letter is only intended to inform you of the existence of **violations** and of the ways in which you may move into compliance with the law. It neither imposes nor waives any enforcement action available to the Department under any of its statutes. If the Department determines that an enforcement action is appropriate, you will be notified of the action.

This Notice of Violation is neither an order nor any other final action of the Department of Environmental Protection.

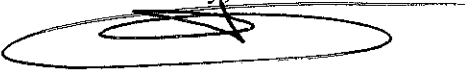
East Dunkard Water Authority

- 2 -

August 23, 2022

If you have any questions concerning this matter, please contact me by e-mail at ernorman@pa.gov or by telephone at 724.925.4525.

Sincerely,



Eric John Norman
Sanitarian
Safe Drinking Water Program

7020 2450 0001 5246 7988

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at www.usps.com®.

OFFICIAL USE

Certified Mail Fee	\$
Extra Services & Fees (check box, add fee as appropriate)	\$
☐ Return Receipt (hardcopy)	\$
☐ Return Receipt (electronic)	\$
☐ Certified Mail Restricted Delivery	\$
☐ Adult Signature Required	\$
☐ Adult Signature Restricted Delivery	\$
Postage	\$
Total Postage and Fees	\$

Postmark Here

8.23.22

Sent To: East Dunkard Water Auth.
Street and Apt. No., or PO Box No.
City, State, ZIP+4®

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

Application of Pennsylvania-American Water Company for approval of the right to: (1) acquire substantially all of the East Dunkard Water Authority's assets, properties and rights related to its water system to Pennsylvania-American Water Company, and (2) begin to offer, render, furnish or supply water service to the public in Dunkard, and portions of Monongahela, Greene, Cumberland, Perry, and Whiteley Townships, Greene County, Pennsylvania

Docket No. A-2024-3049759

PAWC's Responses to TUS Set I

A-12. Please provide a copy of EDWA's federal tax returns for 2022 and 2023.

Response: A Municipal Authority is exempt from Federal Taxes except for Payroll Taxes. IRS Form 941 is submitted quarterly by a third party (PayChex) on behalf of EDWA. Quarterly forms for 2022 and 2023 are attached as **TUS-A-12_Attachment**.

Responsible Witness: Don Wieczenski, Director – Business Development
Pennsylvania-American Water Company

Date: July 25, 2024

TUS-A-12_ATTACHMENT
EDWA FORM 941 FOR 2022

Form **941 for 2022: Employer's QUARTERLY Federal Tax Return**

(Rev. March 2022)

Department of the Treasury -- Internal Revenue Service

OMB No. 1545-0029

Employer identification number (EIN)	4	5	-	1	2	9	2	3	4	2
Name (not your trade name)	EAST DUNKARD WATER AUTHORITY									
Trade name (if any)										
Address	PO BOX 241 ROUTE 88									
	Number				Street				Suite or room number	
	DILLINER				PA				15327	
	City				State				ZIP code	
	Foreign country name				Foreign province/county				Foreign postal code	

**Report for this Quarter of 2022
(Check one.)**

- ☒ 1: January, February, March
- ☐ 2: April, May, June
- ☐ 3: July, August, September
- ☐ 4: October, November, December

Go to www.irs.gov/Form941 for instructions and the latest information.

Read the separate instructions before you complete Form 941. Type or print within the boxes.

Part 1: Answer these questions for this quarter.

1	Number of employees who received wages, tips, or other compensation for the pay period including: Mar. 12 (Quarter 1)	1	11
2	Wages, tips, and other compensation	2	79,716.53
3	Federal income tax withheld from wages, tips, and other compensation	3	7,520.87
4	If no wages, tips, and other compensation are subject to social security or Medicare tax	☐	Check and go to line 6.

	Column 1		Column 2
5a Taxable social security wages* . . .	79,716.53 × 0.124 =		9,884.85
5a (i) Qualified sick leave wages* . . .	. × 0.062 =		.
5a (ii) Qualified family leave wages* . . .	. × 0.062 =		.
5b Taxable social security tips . . .	. × 0.124 =		.
5c Taxable Medicare wages & tips . . .	79,716.53 × 0.029 =		2,311.78
5d Taxable wages & tips subject to Additional Medicare Tax withholding	. × 0.009 =		.

**Include taxable qualified sick and family leave wages paid in 2022 for leave taken after March 31, 2021, and before October 1, 2021, on line 5a. Use lines 5a(i) and 5a(ii) only for taxable qualified sick and family leave wages paid in 2022 for leave taken after March 31, 2020, and before April 1, 2021.*

5e	Total social security and Medicare taxes. Add Column 2 from lines 5a, 5a(i), 5a(ii), 5b, 5c, and 5d	5e	12,196.63
5f	Section 3121(q) Notice and Demand —Tax due on unreported tips (see instructions) . . .	5f	.
6	Total taxes before adjustments. Add lines 3, 5e, and 5f	6	19,717.50
7	Current quarter's adjustment for fractions of cents	7	.05
8	Current quarter's adjustment for sick pay	8	.
9	Current quarter's adjustments for tips and group-term life insurance	9	.
10	Total taxes after adjustments. Combine lines 6 through 9	10	19,717.55
11a	Qualified small business payroll tax credit for increasing research activities. Attach Form 8974	11a	.
11b	Nonrefundable portion of credit for qualified sick and family leave wages for leave taken before April 1, 2021	11b	.
11c	Reserved for future use	11c	.

▶ You MUST complete all three pages of Form 941 and SIGN it.

Next ➡

Name (not your trade name) EAST DUNKARD WATER AUTHORITY	Employer identification number (EIN) 45-1292342

Part 1: Answer these questions for this quarter. (continued)

11d Nonrefundable portion of credit for qualified sick and family leave wages for leave taken after March 31, 2021, and before October 1, 2021 11d

11e Nonrefundable portion of COBRA premium assistance credit (see instructions for applicable quarters) 11e

11f Number of individuals provided COBRA premium assistance

11g Total nonrefundable credits. Add lines 11a, 11b, 11d and 11e 11g

12 Total taxes after adjustments and nonrefundable credits. Subtract line 11g from line 10 12

13a Total deposits for this quarter, including overpayment applied from a prior quarter and overpayments applied from Form 941-X, 941-X (PR), 944-X, or 944-X (SP) filed in the current quarter 13a

13b Reserved for future use 13b

13c Refundable portion of credit for qualified sick and family leave wages for leave taken before April 1, 2021 13c

13d Reserved for future use 13d

13e Refundable portion of credit for qualified sick and family leave wages for leave taken after March 31, 2021, and before October 1, 2021 13e

13f Refundable portion of COBRA premium assistance credit (see instructions for applicable quarters) 13f

13g Total deposits and refundable credits. Add lines 13a, 13c, 13e, and 13f 13g

13h Reserved for future use 13h

13i Reserved for future use 13i

14 Balance due. If line 12 is more than line 13g, enter the difference and see instructions 14

15 Overpayment. If line 13g is more than line 12, enter the difference Check one: ☐ Apply to next return ☐ Send a refund.

Part 2: Tell us about your deposit schedule and tax liability for this quarter.

If you're unsure about whether you're a monthly schedule depositor or a semiweekly schedule depositor, see section 11 of Pub. 15.

- 16 Check one: ☐ Line 12 on this return is less than \$2,500 or line 12 on the return for the prior quarter was less than \$2,500, and you didn't incur a \$100,000 next-day deposit obligation during the current quarter. If line 12 for the prior quarter was less than \$2,500 but line 12 on this return is \$100,000 or more, you must provide a record of your federal tax liability. If you're a monthly schedule depositor, complete the deposit schedule below; if you're a semiweekly schedule depositor, attach Schedule B (Form 941). Go to Part 3.
- ☐ You were a monthly schedule depositor for the entire quarter. Enter your tax liability for each month and total liability for the quarter, then go to Part 3.

Tax liability: Month 1

Month 2

Month 3

Total liability for quarter Total must equal line 12.

- ☒ You were a semiweekly schedule depositor for any part of this quarter. Complete Schedule B (Form 941), Report of Tax Liability for Semiweekly Schedule Depositors, and attach it to Form 941. Go to Part 3.

► You MUST complete all three pages of Form 941 and SIGN it.

Next ►

Name (not your trade name)

EAST DUNKARD WATER AUTHORITY

Employer identification number (EIN)

45-1292342

Part 3: Tell us about your business. If a question does NOT apply to your business, leave it blank.

17 If your business has closed or you stopped paying wages ☐ Check here, and enter the final date you paid wages ; also attach a statement of your return. See Instructions.

18 If you're a seasonal employer and you don't have to file a return for every quarter of the year . . . ☐ Check here.

19 Qualified health plan expenses allocable to qualified sick leave wages for leave taken before April 1, 2021 **19** .

20 Qualified health plan expenses allocable to qualified family leave wages for leave taken before April 1, 2021 **20** .

21 Reserved for future use **21** .

22 Reserved for future use **22** .

23 Qualified sick leave wages for leave taken after March 31, 2021, and before October 1, 2021 **23** .

24 Qualified health plan expenses allocable to qualified sick leave wages reported on line 23 . . . **24** .

25 Amounts under certain collectively bargained agreements allocable to qualified sick leave wages reported on line 23 **25** .

26 Qualified family leave wages for leave taken after March 31, 2021, and before October 1, 2021 **26** .

27 Qualified health plan expenses allocable to qualified family leave wages reported on line 26 . . **27** .

28 Amounts under certain collectively bargained agreements allocable to qualified family leave wages reported on line 26 **28** .

Part 4: May we speak with your third-party designee?

Do you want to allow an employee, a paid tax preparer, or another person to discuss this return with the IRS? See the instructions for details.

☐ Yes. Designee's name and phone number

Select a 5-digit personal identification number (PIN) to use when talking to the IRS.

☒ No.

Part 5: Sign here. You MUST complete all three pages of Form 941 and SIGN it.

Under penalties of perjury, I declare that I have examined this return, including accompanying schedules and statements, and to the best of my knowledge and belief, it is true, correct, and complete. Declaration of preparer (other than taxpayer) is based on all information of which preparer has any knowledge.

X**Sign your name here**REFERENCE COPY PREPARED BY PAYCHEX
DO NOT FILE

Print your name here

Print your title here

Date

Best daytime phone

Paid Preparer Use OnlyCheck if you're self-employed ☐

Preparer's name

PTIN

Preparer's signature

Date

Firm's name (or yours if self-employed)

EIN

Address

Phone

City

State

ZIP code

Schedule B (Form 941):

Report of Tax Liability for Semiweekly Schedule Depositors

(Rev. January 2017)

Department of the Treasury -- Internal Revenue Service

OMB No. 1545-0029

Employer identification number (EIN)

4

5

-

1

2

9

2

3

4

2

Name (not your trade name)

EAST DUNKARD WATER AUTHORITY

Calendar year

2

0

2

2

(Also check quarter)

Report for this Quarter ... (Check one.)

☒ 1: January, February, March

☐ 2: April, May, June

☐ 3: July, August, September

☐ 4: October, November, December

Use this schedule to show your TAX LIABILITY for the quarter; don't use it to show your deposits. When you file this form with Form 941 or Form 941-SS, don't change your tax liability by adjustments reported on any Forms 941-X or 944-X. You must fill out this form and attach it to Form 941 or Form 941-SS if you're a semiweekly schedule depositor or became one because your accumulated tax liability on any day was \$100,000 or more. Write your daily tax liability on the numbered space that corresponds to the date wages were paid. See Section 11 in Pub. 15 for details.

Month 1

1		9		17		25	
2		10		18		26	
3		11		19		27	
4		12		20		28	
5		13		21	2,457.19	29	
6		14		22		30	
7	1,749.94	15		23		31	
8		16		24			

Tax liability for Month 1

4,207.13

Month 2

1		9		17		25	
2		10		18	3,316.35	26	
3		11		19		27	
4	3,175.01	12		20		28	
5		13		21		29	
6		14		22		30	
7		15		23		31	
8		16		24			

Tax liability for Month 2

6,491.36

Month 3

1		9		17		25	
2		10		18	5,165.18	26	
3		11		19		27	
4	3,853.88	12		20		28	
5		13		21		29	
6		14		22		30	
7		15		23		31	
8		16		24			

Tax liability for Month 3

9,019.06

Fill in your total liability for the quarter (Month 1 + Month 2 + Month 3) ▶

Total must equal line 12 on Form 941 or Form 941-SS.

Total liability for the quarter

19,717.55

Form **941 for 2022: Employer's QUARTERLY Federal Tax Return**

(Rev. JUNE 2022)

Department of the Treasury -- Internal Revenue Service

OMB No. 1545-0029

Employer identification number (EIN)	4	5	-	1	2	9	2	3	4	2
Name (not your trade name)	EAST DUNKARD WATER AUTHORITY									
Trade name (if any)										
Address	PO BOX 241 ROUTE 88									
Number	DILLINER				PA		15327			
City					State		ZIP code			
Foreign country name					Foreign province/county		Foreign postal code			

**Report for this Quarter of 2022
(Check one.)**

- ☐ 1: January, February, March
- ☒ 2: April, May, June
- ☐ 3: July, August, September
- ☐ 4: October, November, December

Go to www.irs.gov/Form941 for instructions and the latest information.

Read the separate instructions before you complete Form 941. Type or print within the boxes.

Part 1: Answer these questions for this quarter.

1	Number of employees who received wages, tips, or other compensation for the pay period including: June 12 (Quarter 2), Sept. 12 (Quarter 3), or Dec. 12 (Quarter 4)	1	12																																																																				
2	Wages, tips, and other compensation	2	120,886.38																																																																				
3	Federal income tax withheld from wages, tips, and other compensation	3	10,559.33																																																																				
4	If no wages, tips, and other compensation are subject to social security or Medicare tax	☐ Check and go to line 6.																																																																					
<table border="1"> <thead> <tr> <th></th> <th>Column 1</th> <th></th> <th>Column 2</th> </tr> </thead> <tbody> <tr> <td>5a</td> <td>Taxable social security wages*</td> <td>120,886.38 × 0.124 =</td> <td>14,989.91</td> </tr> <tr> <td>5a</td> <td>(i) Qualified sick leave wages*</td> <td>. × 0.062 =</td> <td>.</td> </tr> <tr> <td>5a</td> <td>(ii) Qualified family leave wages*</td> <td>. × 0.062 =</td> <td>.</td> </tr> <tr> <td>5b</td> <td>Taxable social security tips</td> <td>. × 0.124 =</td> <td>.</td> </tr> <tr> <td>5c</td> <td>Taxable Medicare wages & tips</td> <td>120,886.38 × 0.029 =</td> <td>3,505.71</td> </tr> <tr> <td>5d</td> <td>Taxable wages & tips subject to Additional Medicare Tax withholding</td> <td>. × 0.009 =</td> <td>.</td> </tr> <tr> <td>5e</td> <td>Total social security and Medicare taxes. Add Column 2 from lines 5a, 5a(i), 5a(ii), 5b, 5c, and 5d</td> <td>5e</td> <td>18,495.62</td> </tr> <tr> <td>5f</td> <td>Section 3121(q) Notice and Demand —Tax due on unreported tips (see instructions)</td> <td>5f</td> <td>.</td> </tr> <tr> <td>6</td> <td>Total taxes before adjustments. Add lines 3, 5e, and 5f</td> <td>6</td> <td>29,054.95</td> </tr> <tr> <td>7</td> <td>Current quarter's adjustment for fractions of cents</td> <td>7</td> <td>.14</td> </tr> <tr> <td>8</td> <td>Current quarter's adjustment for sick pay</td> <td>8</td> <td>.</td> </tr> <tr> <td>9</td> <td>Current quarter's adjustments for tips and group-term life insurance</td> <td>9</td> <td>.</td> </tr> <tr> <td>10</td> <td>Total taxes after adjustments. Combine lines 6 through 9</td> <td>10</td> <td>29,055.09</td> </tr> <tr> <td>11a</td> <td>Qualified small business payroll tax credit for increasing research activities. Attach Form 8974</td> <td>11a</td> <td>.</td> </tr> <tr> <td>11b</td> <td>Nonrefundable portion of credit for qualified sick and family leave wages for leave taken before April 1, 2021</td> <td>11b</td> <td>.</td> </tr> <tr> <td>11c</td> <td>Reserved for future use</td> <td>11c</td> <td>.</td> </tr> </tbody> </table>					Column 1		Column 2	5a	Taxable social security wages*	120,886.38 × 0.124 =	14,989.91	5a	(i) Qualified sick leave wages*	. × 0.062 =	.	5a	(ii) Qualified family leave wages*	. × 0.062 =	.	5b	Taxable social security tips	. × 0.124 =	.	5c	Taxable Medicare wages & tips	120,886.38 × 0.029 =	3,505.71	5d	Taxable wages & tips subject to Additional Medicare Tax withholding	. × 0.009 =	.	5e	Total social security and Medicare taxes. Add Column 2 from lines 5a, 5a(i), 5a(ii), 5b, 5c, and 5d	5e	18,495.62	5f	Section 3121(q) Notice and Demand —Tax due on unreported tips (see instructions)	5f	.	6	Total taxes before adjustments. Add lines 3, 5e, and 5f	6	29,054.95	7	Current quarter's adjustment for fractions of cents	7	.14	8	Current quarter's adjustment for sick pay	8	.	9	Current quarter's adjustments for tips and group-term life insurance	9	.	10	Total taxes after adjustments. Combine lines 6 through 9	10	29,055.09	11a	Qualified small business payroll tax credit for increasing research activities. Attach Form 8974	11a	.	11b	Nonrefundable portion of credit for qualified sick and family leave wages for leave taken before April 1, 2021	11b	.	11c	Reserved for future use	11c	.
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*Include taxable qualified sick and family leave wages paid in this quarter of 2022 for leave taken after March 31, 2021, and before October 1, 2021, on line 5a. Use lines 5a(i) and 5a(ii) only for taxable qualified sick and family leave wages paid in this quarter of 2022 for leave taken after March 31, 2020, and before April 1, 2021.

► You MUST complete all three pages of Form 941 and SIGN it.

Next ➡

Name (not your trade name) EAST DUNKARD WATER AUTHORITY	Employer identification number (EIN) 45-1292342

Part 1: Answer these questions for this quarter. (continued)

11d Nonrefundable portion of credit for qualified sick and family leave wages for leave taken after March 31, 2021, and before October 1, 2021 11d

11e Reserved for future use 11e

11f Reserved for future use

11g Total nonrefundable credits. Add lines 11a, 11b, and 11d 11g

12 Total taxes after adjustments and nonrefundable credits. Subtract line 11g from line 10 12

13a Total deposits for this quarter, including overpayment applied from a prior quarter and overpayments applied from Form 941-X, 941-X (PR), 944-X, or 944-X (SP) filed in the current quarter 13a

13b Reserved for future use 13b

13c Refundable portion of credit for qualified sick and family leave wages for leave taken before April 1, 2021 13c

13d Reserved for future use 13d

13e Refundable portion of credit for qualified sick and family leave wages for leave taken after March 31, 2021, and before October 1, 2021 13e

13f Reserved for future use. 13f

13g Total deposits and refundable credits. Add lines 13a, 13c, and 13e 13g

13h Reserved for future use 13h

13i Reserved for future use 13i

14 Balance due. If line 12 is more than line 13g, enter the difference and see instructions 14

15 Overpayment. If line 13g is more than line 12, enter the difference Check one: ☐ Apply to next return ☐ Send a refund.

Part 2: Tell us about your deposit schedule and tax liability for this quarter.

If you're unsure about whether you're a monthly schedule depositor or a semiweekly schedule depositor, see section 11 of Pub. 15.

- 16 Check one: ☐ Line 12 on this return is less than \$2,500 or line 12 on the return for the prior quarter was less than \$2,500, and you didn't incur a \$100,000 next-day deposit obligation during the current quarter. If line 12 for the prior quarter was less than \$2,500 but line 12 on this return is \$100,000 or more, you must provide a record of your federal tax liability. If you're a monthly schedule depositor, complete the deposit schedule below; if you're a semiweekly schedule depositor, attach Schedule B (Form 941). Go to Part 3.
- ☐ You were a monthly schedule depositor for the entire quarter. Enter your tax liability for each month and total liability for the quarter, then go to Part 3.

Tax liability: Month 1

Month 2

Month 3

Total liability for quarter

Total must equal line 12.

- ☒ You were a semiweekly schedule depositor for any part of this quarter. Complete Schedule B (Form 941), Report of Tax Liability for Semiweekly Schedule Depositors, and attach it to Form 941. Go to Part 3.

► You MUST complete all three pages of Form 941 and SIGN it.

Next ►

Name (not your trade name)

EAST DUNKARD WATER AUTHORITY

Employer identification number (EIN)

45-1292342

Part 3: Tell us about your business. If a question does NOT apply to your business, leave it blank.

17 If your business has closed or you stopped paying wages ☐ Check here, and enter the final date you paid wages ; also attach a statement of your return. See instructions.

18 If you're a seasonal employer and you don't have to file a return for every quarter of the year . . . ☐ Check here.

19 Qualified health plan expenses allocable to qualified sick leave wages for leave taken before April 1, 2021 **19** .

20 Qualified health plan expenses allocable to qualified family leave wages for leave taken before April 1, 2021 **20** .

21 Reserved for future use **21** .

22 Reserved for future use **22** .

23 Qualified sick leave wages for leave taken after March 31, 2021, and before October 1, 2021 **23** .

24 Qualified health plan expenses allocable to qualified sick leave wages reported on line 23 . . . **24** .

25 Amounts under certain collectively bargained agreements allocable to qualified sick leave wages reported on line 23 **25** .

26 Qualified family leave wages for leave taken after March 31, 2021, and before October 1, 2021 **26** .

27 Qualified health plan expenses allocable to qualified family leave wages reported on line 26 . . **27** .

28 Amounts under certain collectively bargained agreements allocable to qualified family leave wages reported on line 26 **28** .

Part 4: May we speak with your third-party designee?

Do you want to allow an employee, a paid tax preparer, or another person to discuss this return with the IRS? See the instructions for details.

☐ Yes. Designee's name and phone number

Select a 5-digit personal identification number (PIN) to use when talking to the IRS.

☒ No.

Part 5: Sign here. You MUST complete all three pages of Form 941 and SIGN it.

Under penalties of perjury, I declare that I have examined this return, including accompanying schedules and statements, and to the best of my knowledge and belief, it is true, correct, and complete. Declaration of preparer (other than taxpayer) is based on all information of which preparer has any knowledge.

X**Sign your name here**REFERENCE COPY PREPARED BY PAYCHEX
DO NOT FILE

Print your name here

Print your title here

Date

Best daytime phone

Paid Preparer Use OnlyCheck if you're self-employed ☐

Preparer's name

PTIN

Preparer's signature

Date

Firm's name (or yours if self-employed)

EIN

Address

Phone

City

State

ZIP code

Schedule B (Form 941):

Report of Tax Liability for Semiweekly Schedule Depositors

(Rev. January 2017)

Department of the Treasury -- Internal Revenue Service

OMB No. 1545-0029

Employer identification number (EIN)

4

5

-

1

2

9

2

3

4

2

Name (not your trade name)

EAST DUNKARD WATER AUTHORITY

Calendar year

2

0

2

2

(Also check quarter)

Report for this Quarter ...
(Check one.)

☐ 1: January, February, March

☒ 2: April, May, June

☐ 3: July, August, September

☐ 4: October, November, December

Use this schedule to show your TAX LIABILITY for the quarter; don't use it to show your deposits. When you file this form with Form 941 or Form 941-SS, don't change your tax liability by adjustments reported on any Forms 941-X or 944-X. You must fill out this form and attach it to Form 941 or Form 941-SS if you're a semiweekly schedule depositor or became one because your accumulated tax liability on any day was \$100,000 or more. Write your daily tax liability on the numbered space that corresponds to the date wages were paid. See Section 11 in Pub. 15 for details.

Month 1

1	4,820.85	9		17		25	
2		10		18		26	
3		11		19		27	
4		12		20		28	
5		13		21		29	3,525.07
6		14		22		30	
7		15	4,508.18	23		31	
8		16		24			

Tax liability for Month 1

12,854.10

Month 2

1		9		17		25	
2		10		18		26	
3		11		19		27	3,912.58
4		12		20		28	
5		13	3,845.56	21		29	
6		14		22		30	
7		15		23		31	
8		16		24			

Tax liability for Month 2

7,758.14

Month 3

1		9		17		25	
2		10	4,485.17	18		26	
3		11		19		27	
4		12		20		28	
5		13		21		29	
6		14		22		30	
7		15		23		31	
8		16		24	3,957.68		

Tax liability for Month 3

8,442.85

Fill in your total liability for the quarter (Month 1 + Month 2 + Month 3) ▶

Total must equal line 12 on Form 941 or Form 941-SS.

Total liability for the quarter

29,055.09

Form **941 for 2022: Employer's QUARTERLY Federal Tax Return**

(Rev. JUNE 2022)

Department of the Treasury -- Internal Revenue Service

OMB No. 1545-0029

Employer identification number (EIN)	4	5	-	1	2	9	2	3	4	2
Name (not your trade name)	EAST DUNKARD WATER AUTHORITY									
Trade name (if any)										
Address	PO BOX 241 ROUTE 88									
Number	DILLINER				PA		15327			
City					State		ZIP code			
Foreign country name					Foreign province/county		Foreign postal code			

**Report for this Quarter of 2022
(Check one.)**

- ☐ 1: January, February, March
- ☐ 2: April, May, June
- ☒ 3: July, August, September
- ☐ 4: October, November, December

Go to www.irs.gov/Form941 for instructions and the latest information.

Read the separate instructions before you complete Form 941. Type or print within the boxes.

Part 1: Answer these questions for this quarter.

1	Number of employees who received wages, tips, or other compensation for the pay period including: June 12 (Quarter 2), Sept. 12 (Quarter 3), or Dec. 12 (Quarter 4)	1	11																												
2	Wages, tips, and other compensation	2	104,465.43																												
3	Federal income tax withheld from wages, tips, and other compensation	3	8,503.92																												
4	If no wages, tips, and other compensation are subject to social security or Medicare tax	☐ Check and go to line 6.																													
<table border="1"> <thead> <tr> <th></th> <th>Column 1</th> <th></th> <th>Column 2</th> </tr> </thead> <tbody> <tr> <td>5a</td> <td>Taxable social security wages*</td> <td>104,465.43 × 0.124 =</td> <td>12,953.71</td> </tr> <tr> <td>5a</td> <td>(i) Qualified sick leave wages*</td> <td>. × 0.062 =</td> <td>.</td> </tr> <tr> <td>5a</td> <td>(ii) Qualified family leave wages*</td> <td>. × 0.062 =</td> <td>.</td> </tr> <tr> <td>5b</td> <td>Taxable social security tips</td> <td>. × 0.124 =</td> <td>.</td> </tr> <tr> <td>5c</td> <td>Taxable Medicare wages & tips</td> <td>104,465.43 × 0.029 =</td> <td>3,029.50</td> </tr> <tr> <td>5d</td> <td>Taxable wages & tips subject to Additional Medicare Tax withholding</td> <td>. × 0.009 =</td> <td>.</td> </tr> </tbody> </table>					Column 1		Column 2	5a	Taxable social security wages*	104,465.43 × 0.124 =	12,953.71	5a	(i) Qualified sick leave wages*	. × 0.062 =	.	5a	(ii) Qualified family leave wages*	. × 0.062 =	.	5b	Taxable social security tips	. × 0.124 =	.	5c	Taxable Medicare wages & tips	104,465.43 × 0.029 =	3,029.50	5d	Taxable wages & tips subject to Additional Medicare Tax withholding	. × 0.009 =	.
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5c	Taxable Medicare wages & tips	104,465.43 × 0.029 =	3,029.50																												
5d	Taxable wages & tips subject to Additional Medicare Tax withholding	. × 0.009 =	.																												
5e	Total social security and Medicare taxes. Add Column 2 from lines 5a, 5a(i), 5a(ii), 5b, 5c, and 5d	5e	15,983.21																												
5f	Section 3121(q) Notice and Demand —Tax due on unreported tips (see instructions)	5f	.																												
6	Total taxes before adjustments. Add lines 3, 5e, and 5f	6	24,487.13																												
7	Current quarter's adjustment for fractions of cents	7	-.04																												
8	Current quarter's adjustment for sick pay	8	.																												
9	Current quarter's adjustments for tips and group-term life insurance	9	.																												
10	Total taxes after adjustments. Combine lines 6 through 9	10	24,487.09																												
11a	Qualified small business payroll tax credit for increasing research activities. Attach Form 8974	11a	.																												
11b	Nonrefundable portion of credit for qualified sick and family leave wages for leave taken before April 1, 2021	11b	.																												
11c	Reserved for future use	11c	.																												

*Include taxable qualified sick and family leave wages paid in this quarter of 2022 for leave taken after March 31, 2021, and before October 1, 2021, on line 5a. Use lines 5a(i) and 5a(ii) only for taxable qualified sick and family leave wages paid in this quarter of 2022 for leave taken after March 31, 2020, and before April 1, 2021.

► You MUST complete all three pages of Form 941 and SIGN it.

Next ➡

Name (not your trade name) EAST DUNKARD WATER AUTHORITY	Employer identification number (EIN) 45-1292342

Part 1: Answer these questions for this quarter. (continued)

11d Nonrefundable portion of credit for qualified sick and family leave wages for leave taken after March 31, 2021, and before October 1, 2021 11d

11e Reserved for future use 11e

11f Reserved for future use

11g Total nonrefundable credits. Add lines 11a, 11b, and 11d 11g

12 Total taxes after adjustments and nonrefundable credits. Subtract line 11g from line 10 12

13a Total deposits for this quarter, including overpayment applied from a prior quarter and overpayments applied from Form 941-X, 941-X (PR), 944-X, or 944-X (SP) filed in the current quarter 13a

13b Reserved for future use 13b

13c Refundable portion of credit for qualified sick and family leave wages for leave taken before April 1, 2021 13c

13d Reserved for future use 13d

13e Refundable portion of credit for qualified sick and family leave wages for leave taken after March 31, 2021, and before October 1, 2021 13e

13f Reserved for future use. 13f

13g Total deposits and refundable credits. Add lines 13a, 13c, and 13e 13g

13h Reserved for future use 13h

13i Reserved for future use 13i

14 Balance due. If line 12 is more than line 13g, enter the difference and see instructions 14

15 Overpayment. If line 13g is more than line 12, enter the difference Check one: ☐ Apply to next return ☐ Send a refund.

Part 2: Tell us about your deposit schedule and tax liability for this quarter.

If you're unsure about whether you're a monthly schedule depositor or a semiweekly schedule depositor, see section 11 of Pub. 15.

- 16 Check one: ☐ Line 12 on this return is less than \$2,500 or line 12 on the return for the prior quarter was less than \$2,500, and you didn't incur a \$100,000 next-day deposit obligation during the current quarter. If line 12 for the prior quarter was less than \$2,500 but line 12 on this return is \$100,000 or more, you must provide a record of your federal tax liability. If you're a monthly schedule depositor, complete the deposit schedule below; if you're a semiweekly schedule depositor, attach Schedule B (Form 941). Go to Part 3.
- ☐ You were a monthly schedule depositor for the entire quarter. Enter your tax liability for each month and total liability for the quarter, then go to Part 3.

Tax liability: Month 1

Month 2

Month 3

Total liability for quarter Total must equal line 12.

- ☒ You were a semiweekly schedule depositor for any part of this quarter. Complete Schedule B (Form 941), Report of Tax Liability for Semiweekly Schedule Depositors, and attach it to Form 941. Go to Part 3.

► You MUST complete all three pages of Form 941 and SIGN it.

Next ►

Name (not your trade name)

EAST DUNKARD WATER AUTHORITY

Employer identification number (EIN)

45-1292342

Part 3: Tell us about your business. If a question does NOT apply to your business, leave it blank.

17 If your business has closed or you stopped paying wages ☐ Check here, and enter the final date you paid wages ; also attach a statement of your return. See instructions.

18 If you're a seasonal employer and you don't have to file a return for every quarter of the year . . . ☐ Check here.

19 Qualified health plan expenses allocable to qualified sick leave wages for leave taken before April 1, 2021 **19** .

20 Qualified health plan expenses allocable to qualified family leave wages for leave taken before April 1, 2021 **20** .

21 Reserved for future use **21** .

22 Reserved for future use **22** .

23 Qualified sick leave wages for leave taken after March 31, 2021, and before October 1, 2021 **23** .

24 Qualified health plan expenses allocable to qualified sick leave wages reported on line 23 . . . **24** .

25 Amounts under certain collectively bargained agreements allocable to qualified sick leave wages reported on line 23 **25** .

26 Qualified family leave wages for leave taken after March 31, 2021, and before October 1, 2021 **26** .

27 Qualified health plan expenses allocable to qualified family leave wages reported on line 26 . . **27** .

28 Amounts under certain collectively bargained agreements allocable to qualified family leave wages reported on line 26 **28** .

Part 4: May we speak with your third-party designee?

Do you want to allow an employee, a paid tax preparer, or another person to discuss this return with the IRS? See the instructions for details.

☐ Yes. Designee's name and phone number

Select a 5-digit personal identification number (PIN) to use when talking to the IRS.

☒ No.

Part 5: Sign here. You MUST complete all three pages of Form 941 and SIGN it.

Under penalties of perjury, I declare that I have examined this return, including accompanying schedules and statements, and to the best of my knowledge and belief, it is true, correct, and complete. Declaration of preparer (other than taxpayer) is based on all information of which preparer has any knowledge.

X**Sign your name here**REFERENCE COPY PREPARED BY PAYCHEX
DO NOT FILE

Print your name here

Print your title here

Date

Best daytime phone

Paid Preparer Use OnlyCheck if you're self-employed ☐

Preparer's name

PTIN

Preparer's signature

Date

Firm's name (or yours if self-employed)

EIN

Address

Phone

City

State

ZIP code

Schedule B (Form 941):**Report of Tax Liability for Semiweekly Schedule Depositors**

(Rev. January 2017)

Department of the Treasury -- Internal Revenue Service

OMB No. 1545-0029

Employer identification number
(EIN)

4 5 - 1 2 9 2 3 4 2

Name (not your trade name)

EAST DUNKARD WATER AUTHORITY

Calendar year

2 0 2 2

(Also check quarter)

**Report for this Quarter ...
(Check one.)**

- ☐ 1: January, February, March
- ☐ 2: April, May, June
- ☒ 3: July, August, September
- ☐ 4: October, November, December

Use this schedule to show your TAX LIABILITY for the quarter; don't use it to show your deposits. When you file this form with Form 941 or Form 941-SS, don't change your tax liability by adjustments reported on any Forms 941-X or 944-X. You must fill out this form and attach it to Form 941 or Form 941-SS if you're a semiweekly schedule depositor or became one because your accumulated tax liability on any day was \$100,000 or more. Write your daily tax liability on the numbered space that corresponds to the date wages were paid. See Section 11 in Pub. 15 for details.

Month 1

1		9		17		25	
2		10		18		26	
3		11		19		27	
4		12		20		28	
5		13	775.49	21		29	4,098.98
6		14		22		30	
7		15		23		31	
8	4,127.04	16		24			

Tax liability for Month 1

9,001.51

Month 2

1		9		17		25	
2		10		18		26	4,188.66
3		11		19		27	
4		12	3,943.71	20		28	
5		13		21		29	
6		14		22		30	
7		15		23		31	
8		16		24			

Tax liability for Month 2

8,132.37

Month 3

1		9	3,737.09	17		25	
2		10		18		26	
3		11		19		27	
4		12		20		28	
5		13		21		29	
6		14		22		30	
7		15		23	3,616.12	31	
8		16		24			

Tax liability for Month 3

7,353.21

Fill in your total liability for the quarter (Month 1 + Month 2 + Month 3) ▶

Total must equal line 12 on Form 941 or Form 941-SS.

Total liability for the quarter

24,487.09

Form **941 for 2022: Employer's QUARTERLY Federal Tax Return**

(Rev. JUNE 2022)

Department of the Treasury -- Internal Revenue Service

OMB No. 1545-0029

Employer identification number (EIN)	4	5	-	1	2	9	2	3	4	2
Name (not your trade name)	EAST DUNKARD WATER AUTHORITY									
Trade name (if any)										
Address	PO BOX 241 ROUTE 88									
Number	DILLINER				PA		15327			
City					State		ZIP code			
Foreign country name					Foreign province/county		Foreign postal code			

**Report for this Quarter of 2022
(Check one.)**

- ☐ 1: January, February, March
- ☐ 2: April, May, June
- ☐ 3: July, August, September
- ☒ 4: October, November, December

Go to www.irs.gov/Form941 for instructions and the latest information.

Read the separate instructions before you complete Form 941. Type or print within the boxes.

Part 1: Answer these questions for this quarter.

1	Number of employees who received wages, tips, or other compensation for the pay period including: June 12 (Quarter 2), Sept. 12 (Quarter 3), or Dec. 12 (Quarter 4)	1	11																																																																				
2	Wages, tips, and other compensation	2	104,482.52																																																																				
3	Federal income tax withheld from wages, tips, and other compensation	3	8,131.88																																																																				
4	If no wages, tips, and other compensation are subject to social security or Medicare tax	☐ Check and go to line 6.																																																																					
<table border="1"> <thead> <tr> <th></th> <th>Column 1</th> <th></th> <th>Column 2</th> </tr> </thead> <tbody> <tr> <td>5a</td> <td>Taxable social security wages*</td> <td>104,482.52 × 0.124 =</td> <td>12,955.83</td> </tr> <tr> <td>5a</td> <td>(i) Qualified sick leave wages*</td> <td>. × 0.062 =</td> <td>.</td> </tr> <tr> <td>5a</td> <td>(ii) Qualified family leave wages*</td> <td>. × 0.062 =</td> <td>.</td> </tr> <tr> <td>5b</td> <td>Taxable social security tips</td> <td>. × 0.124 =</td> <td>.</td> </tr> <tr> <td>5c</td> <td>Taxable Medicare wages & tips</td> <td>104,482.52 × 0.029 =</td> <td>3,029.99</td> </tr> <tr> <td>5d</td> <td>Taxable wages & tips subject to Additional Medicare Tax withholding</td> <td>. × 0.009 =</td> <td>.</td> </tr> <tr> <td>5e</td> <td>Total social security and Medicare taxes. Add Column 2 from lines 5a, 5a(i), 5a(ii), 5b, 5c, and 5d</td> <td>5e</td> <td>15,985.82</td> </tr> <tr> <td>5f</td> <td>Section 3121(q) Notice and Demand —Tax due on unreported tips (see instructions)</td> <td>5f</td> <td>.</td> </tr> <tr> <td>6</td> <td>Total taxes before adjustments. Add lines 3, 5e, and 5f</td> <td>6</td> <td>24,117.70</td> </tr> <tr> <td>7</td> <td>Current quarter's adjustment for fractions of cents</td> <td>7</td> <td>-.01</td> </tr> <tr> <td>8</td> <td>Current quarter's adjustment for sick pay</td> <td>8</td> <td>.</td> </tr> <tr> <td>9</td> <td>Current quarter's adjustments for tips and group-term life insurance</td> <td>9</td> <td>.</td> </tr> <tr> <td>10</td> <td>Total taxes after adjustments. Combine lines 6 through 9</td> <td>10</td> <td>24,117.69</td> </tr> <tr> <td>11a</td> <td>Qualified small business payroll tax credit for increasing research activities. Attach Form 8974</td> <td>11a</td> <td>.</td> </tr> <tr> <td>11b</td> <td>Nonrefundable portion of credit for qualified sick and family leave wages for leave taken before April 1, 2021</td> <td>11b</td> <td>.</td> </tr> <tr> <td>11c</td> <td>Reserved for future use</td> <td>11c</td> <td>.</td> </tr> </tbody> </table>					Column 1		Column 2	5a	Taxable social security wages*	104,482.52 × 0.124 =	12,955.83	5a	(i) Qualified sick leave wages*	. × 0.062 =	.	5a	(ii) Qualified family leave wages*	. × 0.062 =	.	5b	Taxable social security tips	. × 0.124 =	.	5c	Taxable Medicare wages & tips	104,482.52 × 0.029 =	3,029.99	5d	Taxable wages & tips subject to Additional Medicare Tax withholding	. × 0.009 =	.	5e	Total social security and Medicare taxes. Add Column 2 from lines 5a, 5a(i), 5a(ii), 5b, 5c, and 5d	5e	15,985.82	5f	Section 3121(q) Notice and Demand —Tax due on unreported tips (see instructions)	5f	.	6	Total taxes before adjustments. Add lines 3, 5e, and 5f	6	24,117.70	7	Current quarter's adjustment for fractions of cents	7	-.01	8	Current quarter's adjustment for sick pay	8	.	9	Current quarter's adjustments for tips and group-term life insurance	9	.	10	Total taxes after adjustments. Combine lines 6 through 9	10	24,117.69	11a	Qualified small business payroll tax credit for increasing research activities. Attach Form 8974	11a	.	11b	Nonrefundable portion of credit for qualified sick and family leave wages for leave taken before April 1, 2021	11b	.	11c	Reserved for future use	11c	.
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11c	Reserved for future use	11c	.																																																																				

*Include taxable qualified sick and family leave wages paid in this quarter of 2022 for leave taken after March 31, 2021, and before October 1, 2021, on line 5a. Use lines 5a(i) and 5a(ii) only for taxable qualified sick and family leave wages paid in this quarter of 2022 for leave taken after March 31, 2020, and before April 1, 2021.

► You MUST complete all three pages of Form 941 and SIGN it.

Next ➡

Name (not your trade name) EAST DUNKARD WATER AUTHORITY	Employer identification number (EIN) 45-1292342

Part 1: Answer these questions for this quarter. (continued)

11d Nonrefundable portion of credit for qualified sick and family leave wages for leave taken after March 31, 2021, and before October 1, 2021 11d

11e Reserved for future use 11e

11f Reserved for future use

11g Total nonrefundable credits. Add lines 11a, 11b, and 11d 11g

12 Total taxes after adjustments and nonrefundable credits. Subtract line 11g from line 10 12

13a Total deposits for this quarter, including overpayment applied from a prior quarter and overpayments applied from Form 941-X, 941-X (PR), 944-X, or 944-X (SP) filed in the current quarter 13a

13b Reserved for future use 13b

13c Refundable portion of credit for qualified sick and family leave wages for leave taken before April 1, 2021 13c

13d Reserved for future use 13d

13e Refundable portion of credit for qualified sick and family leave wages for leave taken after March 31, 2021, and before October 1, 2021 13e

13f Reserved for future use. 13f

13g Total deposits and refundable credits. Add lines 13a, 13c, and 13e 13g

13h Reserved for future use 13h

13i Reserved for future use 13i

14 Balance due. If line 12 is more than line 13g, enter the difference and see instructions 14

15 Overpayment. If line 13g is more than line 12, enter the difference Check one: ☐ Apply to next return ☐ Send a refund.

Part 2: Tell us about your deposit schedule and tax liability for this quarter.

If you're unsure about whether you're a monthly schedule depositor or a semiweekly schedule depositor, see section 11 of Pub. 15.

- 16 Check one: ☐ Line 12 on this return is less than \$2,500 or line 12 on the return for the prior quarter was less than \$2,500, and you didn't incur a \$100,000 next-day deposit obligation during the current quarter. If line 12 for the prior quarter was less than \$2,500 but line 12 on this return is \$100,000 or more, you must provide a record of your federal tax liability. If you're a monthly schedule depositor, complete the deposit schedule below; if you're a semiweekly schedule depositor, attach Schedule B (Form 941). Go to Part 3.
- ☐ You were a monthly schedule depositor for the entire quarter. Enter your tax liability for each month and total liability for the quarter, then go to Part 3.

Tax liability: Month 1

Month 2

Month 3

Total liability for quarter

Total must equal line 12.

- ☒ You were a semiweekly schedule depositor for any part of this quarter. Complete Schedule B (Form 941), Report of Tax Liability for Semiweekly Schedule Depositors, and attach it to Form 941. Go to Part 3.

► You MUST complete all three pages of Form 941 and SIGN it.

Next ►

Name (not your trade name)

EAST DUNKARD WATER AUTHORITY

Employer identification number (EIN)

45-1292342

Part 3: Tell us about your business. If a question does NOT apply to your business, leave it blank.

17 If your business has closed or you stopped paying wages ☐ Check here, and enter the final date you paid wages ; also attach a statement of your return. See instructions.

18 If you're a seasonal employer and you don't have to file a return for every quarter of the year . . . ☐ Check here.

19 Qualified health plan expenses allocable to qualified sick leave wages for leave taken before April 1, 2021 **19** .

20 Qualified health plan expenses allocable to qualified family leave wages for leave taken before April 1, 2021 **20** .

21 Reserved for future use **21** .

22 Reserved for future use **22** .

23 Qualified sick leave wages for leave taken after March 31, 2021, and before October 1, 2021 **23** .

24 Qualified health plan expenses allocable to qualified sick leave wages reported on line 23 . . . **24** .

25 Amounts under certain collectively bargained agreements allocable to qualified sick leave wages reported on line 23 **25** .

26 Qualified family leave wages for leave taken after March 31, 2021, and before October 1, 2021 **26** .

27 Qualified health plan expenses allocable to qualified family leave wages reported on line 26 . . **27** .

28 Amounts under certain collectively bargained agreements allocable to qualified family leave wages reported on line 26 **28** .

Part 4: May we speak with your third-party designee?

Do you want to allow an employee, a paid tax preparer, or another person to discuss this return with the IRS? See the instructions for details.

☐ Yes. Designee's name and phone number

Select a 5-digit personal identification number (PIN) to use when talking to the IRS.

☒ No.

Part 5: Sign here. You MUST complete all three pages of Form 941 and SIGN it.

Under penalties of perjury, I declare that I have examined this return, including accompanying schedules and statements, and to the best of my knowledge and belief, it is true, correct, and complete. Declaration of preparer (other than taxpayer) is based on all information of which preparer has any knowledge.

X**Sign your name here**REFERENCE COPY PREPARED BY PAYCHEX
DO NOT FILE

Print your name here

Print your title here

Date

Best daytime phone

Paid Preparer Use OnlyCheck if you're self-employed ☐

Preparer's name

PTIN

Preparer's signature

Date

Firm's name (or yours if self-employed)

EIN

Address

Phone

City

State

ZIP code

Schedule B (Form 941):

Report of Tax Liability for Semiweekly Schedule Depositors

(Rev. January 2017)

Department of the Treasury -- Internal Revenue Service

OMB No. 1545-0029

Employer identification number (EIN)

4

5

-

1

2

9

2

3

4

2

Name (not your trade name)

EAST DUNKARD WATER AUTHORITY

Calendar year

2

0

2

2

(Also check quarter)

Report for this Quarter ... (Check one.)

☐ 1: January, February, March

☐ 2: April, May, June

☐ 3: July, August, September

☒ 4: October, November, December

Use this schedule to show your TAX LIABILITY for the quarter; don't use it to show your deposits. When you file this form with Form 941 or Form 941-SS, don't change your tax liability by adjustments reported on any Forms 941-X or 944-X. You must fill out this form and attach it to Form 941 or Form 941-SS if you're a semiweekly schedule depositor or became one because your accumulated tax liability on any day was \$100,000 or more. Write your daily tax liability on the numbered space that corresponds to the date wages were paid. See Section 11 in Pub. 15 for details.

Month 1

1		9		17		25	
2		10		18		26	
3		11		19		27	
4		12		20		28	
5		13		21	3,355.43	29	
6		14		22		30	
7	3,551.41	15		23		31	
8		16		24			

Tax liability for Month 1

6,906.84

Month 2

1		9		17		25	
2		10		18	3,398.91	26	
3		11		19		27	
4	3,099.96	12		20		28	
5		13		21		29	
6		14		22		30	
7		15		23		31	
8		16		24			

Tax liability for Month 2

6,498.87

Month 3

1		9		17		25	
2	3,650.36	10		18		26	
3		11		19		27	
4		12		20		28	
5		13		21		29	
6		14		22		30	3,362.61
7		15		23		31	
8		16	3,699.01	24			

Tax liability for Month 3

10,711.98

Fill in your total liability for the quarter (Month 1 + Month 2 + Month 3) ▶

Total must equal line 12 on Form 941 or Form 941-SS.

Total liability for the quarter

24,117.69

Form **941 for 2023: Employer's QUARTERLY Federal Tax Return**

(Rev. March 2023)

Department of the Treasury -- Internal Revenue Service

OMB No. 1545-0029

Employer identification number (EIN)	4	5	-	1	2	9	2	3	4	2
Name (not your trade name)	EAST DUNKARD WATER AUTHORITY									
Trade name (if any)										
Address	PO BOX 241 ROUTE 88									
Number	DILLINER				PA		Suite or room number 15327			
City					State		ZIP code 15327			
Foreign country name					Foreign province/county		Foreign postal code			

**Report for this Quarter of 2023
(Check one.)**

- ☒ 1: January, February, March
- ☐ 2: April, May, June
- ☐ 3: July, August, September
- ☐ 4: October, November, December

Go to www.irs.gov/Form941 for instructions and the latest information.

Read the separate instructions before you complete Form 941. Type or print within the boxes.

Part 1: Answer these questions for this quarter.

1	Number of employees who received wages, tips, or other compensation for the pay period including: Mar. 12 (Quarter 1), June 12 (Quarter 2), Sept. 12 (Quarter 3), or Dec. 12 (Quarter 4) . . . 1	9
2	Wages, tips, and other compensation 2	88,541.86
3	Federal income tax withheld from wages, tips, and other compensation 3	5,663.10
4	If no wages, tips, and other compensation are subject to social security or Medicare tax ☐ Check and go to line 6.	
	Column 1	Column 2
5a	Taxable social security wages* . . . 88,541.86 × 0.124 =	10,979.19
5a (i)	Qualified sick leave wages* × 0.062 =	.
5a (ii)	Qualified family leave wages* × 0.062 =	.
5b	Taxable social security tips × 0.124 =	.
5c	Taxable Medicare wages & tips . . . 88,541.86 × 0.029 =	2,567.71
5d	Taxable wages & tips subject to Additional Medicare Tax withholding × 0.009 =	.
5e	Total social security and Medicare taxes. Add Column 2 from lines 5a, 5a(i), 5a(ii), 5b, 5c, and 5d	13,546.90
5f	Section 3121(q) Notice and Demand —Tax due on unreported tips (see instructions) . . . 5f	.
6	Total taxes before adjustments. Add lines 3, 5e, and 5f 6	19,210.00
7	Current quarter's adjustment for fractions of cents 7	.04
8	Current quarter's adjustment for sick pay 8	.
9	Current quarter's adjustments for tips and group-term life insurance 9	.
10	Total taxes after adjustments. Combine lines 6 through 9 10	19,210.04
11a	Qualified small business payroll tax credit for increasing research activities. Attach Form 8974 11a	.
11b	Nonrefundable portion of credit for qualified sick and family leave wages for leave taken before April 1, 2021 11b	.
11c	Reserved for future use 11c	.

*Include taxable qualified sick and family leave wages paid in this quarter of 2023 for leave taken after March 31, 2021, and before October 1, 2021, on line 5a. Use lines 5a(i) and 5a(ii) **only** for taxable qualified sick and family leave wages paid in this quarter of 2023 for leave taken after March 31, 2020, and before April 1, 2021.

► You MUST complete all three pages of Form 941 and SIGN it.

Name (not your trade name) EAST DUNKARD WATER AUTHORITY	Employer identification number (EIN) 45-1292342

Part 1: Answer these questions for this quarter. (continued)

11d Nonrefundable portion of credit for qualified sick and family leave wages for leave taken after March 31, 2021, and before October 1, 2021	11d	.
11e Reserved for future use	11e	
11f Reserved for future use		
11g Total nonrefundable credits. Add lines 11a, 11b, and 11d	11g	.
12 Total taxes after adjustments and nonrefundable credits. Subtract line 11g from line 10	12	19,210.04
13a Total deposits for this quarter, including overpayment applied from a prior quarter and overpayments applied from Form 941-X, 941-X (PR), 944-X, or 944-X (SP) filed in the current quarter	13a	19,210.04
13b Reserved for future use	13b	.
13c Refundable portion of credit for qualified sick and family leave wages for leave taken before April 1, 2021	13c	.
13d Reserved for future use	13d	.
13e Refundable portion of credit for qualified sick and family leave wages for leave taken after March 31, 2021, and before October 1, 2021	13e	.
13f Reserved for future use.	13f	
13g Total deposits and refundable credits. Add lines 13a, 13c, and 13e	13g	19,210.04
13h Reserved for future use	13h	.
13i Reserved for future use	13i	.
14 Balance due. If line 12 is more than line 13g, enter the difference and see instructions	14	.
15 Overpayment. If line 13g is more than line 12, enter the difference . Check one: ☐ Apply to next return ☐ Send a refund.		

Part 2: Tell us about your deposit schedule and tax liability for this quarter.

If you're unsure about whether you're a monthly schedule depositor or a semiweekly schedule depositor, see section 11 of Pub. 15.

16 Check one: ☐	Line 12 on this return is less than \$2,500 or line 12 on the return for the prior quarter was less than \$2,500, and you didn't incur a \$100,000 next-day deposit obligation during the current quarter. If line 12 for the prior quarter was less than \$2,500 but line 12 on this return is \$100,000 or more, you must provide a record of your federal tax liability. If you're a monthly schedule depositor, complete the deposit schedule below; if you're a semiweekly schedule depositor, attach Schedule B (Form 941). Go to Part 3.
☐	You were a monthly schedule depositor for the entire quarter. Enter your tax liability for each month and total liability for the quarter, then go to Part 3.
	Tax liability: Month 1 .
	Month 2 .
	Month 3 .
	Total liability for quarter .
	Total must equal line 12.

☒ You were a semiweekly schedule depositor for any part of this quarter. Complete Schedule B (Form 941), Report of Tax Liability for Semiweekly Schedule Depositors, and attach it to Form 941. Go to Part 3.

► You MUST complete all three pages of Form 941 and SIGN it.

Name (not your trade name)

EAST DUNKARD WATER AUTHORITY

Employer identification number (EIN)

45-1292342

Part 3: Tell us about your business. If a question does NOT apply to your business, leave it blank.

17 If your business has closed or you stopped paying wages ☐ Check here, and enter the final date you paid wages ; also attach a statement to your return. See instructions.

18 If you're a seasonal employer and you don't have to file a return for every quarter of the year . . . ☐ Check here.

19 Qualified health plan expenses allocable to qualified sick leave wages for leave taken before April 1, 2021 **19** .

20 Qualified health plan expenses allocable to qualified family leave wages for leave taken before April 1, 2021 **20** .

21 Reserved for future use **21** .

22 Reserved for future use **22** .

23 Qualified sick leave wages for leave taken after March 31, 2021, and before October 1, 2021 **23** .

24 Qualified health plan expenses allocable to qualified sick leave wages reported on line 23 . . . **24** .

25 Amounts under certain collectively bargained agreements allocable to qualified sick leave wages reported on line 23 **25** .

26 Qualified family leave wages for leave taken after March 31, 2021, and before October 1, 2021 **26** .

27 Qualified health plan expenses allocable to qualified family leave wages reported on line 26 . . **27** .

28 Amounts under certain collectively bargained agreements allocable to qualified family leave wages reported on line 26 **28** .

Part 4: May we speak with your third-party designee?

Do you want to allow an employee, a paid tax preparer, or another person to discuss this return with the IRS? See the instructions for details.

☐ Yes. Designee's name and phone number

Select a 5-digit personal identification number (PIN) to use when talking to the IRS.

☒ No.

Part 5: Sign here. You MUST complete all three pages of Form 941 and SIGN it.

Under penalties of perjury, I declare that I have examined this return, including accompanying schedules and statements, and to the best of my knowledge and belief, it is true, correct, and complete. Declaration of preparer (other than taxpayer) is based on all information of which preparer has any knowledge.

X**Sign your name here**REFERENCE COPY PREPARED BY PAYCHEX
DO NOT FILE

Print your name here

Print your title here

Date

Best daytime phone

Paid Preparer Use OnlyCheck if you're self-employed ☐

Preparer's name

PTIN

Preparer's signature

Date

Firm's name (or yours if self-employed)

EIN

Address

Phone

City

State

ZIP code

Schedule B (Form 941):**Report of Tax Liability for Semiweekly Schedule Depositors**

OMB No. 1545-0029

(Rev. January 2017)

Department of the Treasury -- Internal Revenue Service

Employer identification number
(EIN)

4 5 - 1 2 9 2 3 4 2

Name (not your trade name)

EAST DUNKARD WATER AUTHORITY

Calendar year

2 0 2 3

(Also check quarter)

**Report for this Quarter ...
(Check one.)**

- ☒ 1: January, February, March
- ☐ 2: April, May, June
- ☐ 3: July, August, September
- ☐ 4: October, November, December

Use this schedule to show your TAX LIABILITY for the quarter; don't use it to show your deposits. When you file this form with Form 941 or Form 941-SS, don't change your tax liability by adjustments reported on any Forms 941-X or 944-X. You must fill out this form and attach it to Form 941 or Form 941-SS if you're a semiweekly schedule depositor or became one because your accumulated tax liability on any day was \$100,000 or more. Write your daily tax liability on the numbered space that corresponds to the date wages were paid. See Section 11 in Pub. 15 for details.

Month 1

1		9		17		25	
2		10		18		26	
3		11		19		27	3,755.63
4		12		20		28	
5		13	3,980.51	21		29	
6		14		22		30	
7		15		23	225.92	31	
8		16		24			

Tax liability for Month 1

7,962.06

Month 2

1		9		17		25	
2		10	2,870.71	18		26	
3		11		19		27	
4		12		20		28	
5		13		21		29	
6		14		22		30	
7		15		23		31	
8		16		24	2,985.48		

Tax liability for Month 2

5,856.19

Month 3

1		9		17		25	
2		10	2,678.94	18		26	
3		11		19		27	
4		12		20		28	
5		13		21		29	
6		14		22		30	
7		15		23		31	
8		16		24	2,712.85		

Tax liability for Month 3

5,391.79

Fill in your total liability for the quarter (Month 1 + Month 2 + Month 3) ▶

Total must equal line 12 on Form 941 or Form 941-SS.

Total liability for the quarter

19,210.04

Form **941 for 2023: Employer's QUARTERLY Federal Tax Return**

(Rev. March 2023)

Department of the Treasury -- Internal Revenue Service

OMB No. 1545-0029

Employer identification number (EIN)	4	5	-	1	2	9	2	3	4	2
Name (not your trade name)	EAST DUNKARD WATER AUTHORITY									
Trade name (if any)										
Address	PO BOX 241 ROUTE 88									
Number	DILLINER				PA		Suite or room number 15327			
City					State		ZIP code 15327			
Foreign country name					Foreign province/county		Foreign postal code			

**Report for this Quarter of 2023
(Check one.)**

- ☐ 1: January, February, March
- ☒ 2: April, May, June
- ☐ 3: July, August, September
- ☐ 4: October, November, December

Go to www.irs.gov/Form941 for instructions and the latest information.

Read the separate instructions before you complete Form 941. Type or print within the boxes.

Part 1: Answer these questions for this quarter.

1	Number of employees who received wages, tips, or other compensation for the pay period including: Mar. 12 (Quarter 1), June 12 (Quarter 2), Sept. 12 (Quarter 3), or Dec. 12 (Quarter 4) . . . 1	10
2	Wages, tips, and other compensation 2	102,955.77
3	Federal income tax withheld from wages, tips, and other compensation 3	5,923.63
4	If no wages, tips, and other compensation are subject to social security or Medicare tax ☐ Check and go to line 6.	
	Column 1	Column 2
5a	Taxable social security wages* . . . 102,955.77 × 0.124 =	12,766.52
5a (i)	Qualified sick leave wages* × 0.062 =	.
5a (ii)	Qualified family leave wages* × 0.062 =	.
5b	Taxable social security tips × 0.124 =	.
5c	Taxable Medicare wages & tips . . . 102,955.77 × 0.029 =	2,985.72
5d	Taxable wages & tips subject to Additional Medicare Tax withholding . . . × 0.009 =	.
5e	Total social security and Medicare taxes. Add Column 2 from lines 5a, 5a(i), 5a(ii), 5b, 5c, and 5d	15,752.24
5f	Section 3121(q) Notice and Demand —Tax due on unreported tips (see instructions) . . . 5f	.
6	Total taxes before adjustments. Add lines 3, 5e, and 5f 6	21,675.87
7	Current quarter's adjustment for fractions of cents 7	.04
8	Current quarter's adjustment for sick pay 8	.
9	Current quarter's adjustments for tips and group-term life insurance 9	.
10	Total taxes after adjustments. Combine lines 6 through 9 10	21,675.91
11a	Qualified small business payroll tax credit for increasing research activities. Attach Form 8974 11a	.
11b	Nonrefundable portion of credit for qualified sick and family leave wages for leave taken before April 1, 2021 11b	.
11c	Reserved for future use 11c	.

*Include taxable qualified sick and family leave wages paid in this quarter of 2023 for leave taken after March 31, 2021, and before October 1, 2021, on line 5a. Use lines 5a(i) and 5a(ii) **only** for taxable qualified sick and family leave wages paid in this quarter of 2023 for leave taken after March 31, 2020, and before April 1, 2021.

► You MUST complete all three pages of Form 941 and SIGN it.

Name (not your trade name) EAST DUNKARD WATER AUTHORITY	Employer identification number (EIN) 45-1292342

Part 1: Answer these questions for this quarter. (continued)

11d Nonrefundable portion of credit for qualified sick and family leave wages for leave taken after March 31, 2021, and before October 1, 2021 11d

11e Reserved for future use 11e

11f Reserved for future use

11g Total nonrefundable credits. Add lines 11a, 11b, and 11d 11g

12 Total taxes after adjustments and nonrefundable credits. Subtract line 11g from line 10 12

13a Total deposits for this quarter, including overpayment applied from a prior quarter and overpayments applied from Form 941-X, 941-X (PR), 944-X, or 944-X (SP) filed in the current quarter 13a

13b Reserved for future use 13b

13c Refundable portion of credit for qualified sick and family leave wages for leave taken before April 1, 2021 13c

13d Reserved for future use 13d

13e Refundable portion of credit for qualified sick and family leave wages for leave taken after March 31, 2021, and before October 1, 2021 13e

13f Reserved for future use. 13f

13g Total deposits and refundable credits. Add lines 13a, 13c, and 13e 13g

13h Reserved for future use 13h

13i Reserved for future use 13i

14 Balance due. If line 12 is more than line 13g, enter the difference and see instructions 14

15 Overpayment. If line 13g is more than line 12, enter the difference Check one: ☐ Apply to next return ☐ Send a refund.

Part 2: Tell us about your deposit schedule and tax liability for this quarter.

If you're unsure about whether you're a monthly schedule depositor or a semiweekly schedule depositor, see section 11 of Pub. 15.

16 Check one: ☐ Line 12 on this return is less than \$2,500 or line 12 on the return for the prior quarter was less than \$2,500, and you didn't incur a \$100,000 next-day deposit obligation during the current quarter. If line 12 for the prior quarter was less than \$2,500 but line 12 on this return is \$100,000 or more, you must provide a record of your federal tax liability. If you're a monthly schedule depositor, complete the deposit schedule below; if you're a semiweekly schedule depositor, attach Schedule B (Form 941). Go to Part 3.

☐ You were a monthly schedule depositor for the entire quarter. Enter your tax liability for each month and total liability for the quarter, then go to Part 3.

Tax liability: Month 1

Month 2

Month 3

Total liability for quarter Total must equal line 12.

☒ You were a semiweekly schedule depositor for any part of this quarter. Complete Schedule B (Form 941), Report of Tax Liability for Semiweekly Schedule Depositors, and attach it to Form 941. Go to Part 3.

► You MUST complete all three pages of Form 941 and SIGN it.

Name (not your trade name)

EAST DUNKARD WATER AUTHORITY

Employer identification number (EIN)

45-1292342

Part 3: Tell us about your business. If a question does NOT apply to your business, leave it blank.

17 If your business has closed or you stopped paying wages ☐ Check here, and enter the final date you paid wages ; also attach a statement to your return. See instructions.

18 If you're a seasonal employer and you don't have to file a return for every quarter of the year . . . ☐ Check here.

19 Qualified health plan expenses allocable to qualified sick leave wages for leave taken before April 1, 2021 **19** .

20 Qualified health plan expenses allocable to qualified family leave wages for leave taken before April 1, 2021 **20** .

21 Reserved for future use **21** .

22 Reserved for future use **22** .

23 Qualified sick leave wages for leave taken after March 31, 2021, and before October 1, 2021 **23** .

24 Qualified health plan expenses allocable to qualified sick leave wages reported on line 23 . . . **24** .

25 Amounts under certain collectively bargained agreements allocable to qualified sick leave wages reported on line 23 **25** .

26 Qualified family leave wages for leave taken after March 31, 2021, and before October 1, 2021 **26** .

27 Qualified health plan expenses allocable to qualified family leave wages reported on line 26 . . **27** .

28 Amounts under certain collectively bargained agreements allocable to qualified family leave wages reported on line 26 **28** .

Part 4: May we speak with your third-party designee?

Do you want to allow an employee, a paid tax preparer, or another person to discuss this return with the IRS? See the instructions for details.

☐ Yes. Designee's name and phone number

Select a 5-digit personal identification number (PIN) to use when talking to the IRS.

☒ No.

Part 5: Sign here. You MUST complete all three pages of Form 941 and SIGN it.

Under penalties of perjury, I declare that I have examined this return, including accompanying schedules and statements, and to the best of my knowledge and belief, it is true, correct, and complete. Declaration of preparer (other than taxpayer) is based on all information of which preparer has any knowledge.

X**Sign your name here**REFERENCE COPY PREPARED BY PAYCHEX
DO NOT FILE

Print your name here

Print your title here

Date

Best daytime phone

Paid Preparer Use OnlyCheck if you're self-employed ☐

Preparer's name

PTIN

Preparer's signature

Date

Firm's name (or yours if self-employed)

EIN

Address

Phone

City

State

ZIP code

Schedule B (Form 941):

Report of Tax Liability for Semiweekly Schedule Depositors

(Rev. January 2017)

Department of the Treasury -- Internal Revenue Service

OMB No. 1545-0029

Employer identification number (EIN)

4

5

-

1

2

9

2

3

4

2

Name (not your trade name)

EAST DUNKARD WATER AUTHORITY

Calendar year

2

0

2

3

(Also check quarter)

Report for this Quarter ...
(Check one.)

☐ 1: January, February, March

☒ 2: April, May, June

☐ 3: July, August, September

☐ 4: October, November, December

Use this schedule to show your TAX LIABILITY for the quarter; don't use it to show your deposits. When you file this form with Form 941 or Form 941-SS, don't change your tax liability by adjustments reported on any Forms 941-X or 944-X. You must fill out this form and attach it to Form 941 or Form 941-SS if you're a semiweekly schedule depositor or became one because your accumulated tax liability on any day was \$100,000 or more. Write your daily tax liability on the numbered space that corresponds to the date wages were paid. See Section 11 in Pub. 15 for details.

Month 1

1		9		17		25	
2		10		18		26	
3		11		19		27	
4		12		20		28	
5		13		21	3,123.42	29	
6		14		22		30	
7	2,726.79	15		23		31	
8		16		24			

Tax liability for Month 1

5,850.21

Month 2

1		9		17		25	
2		10		18		26	
3		11		19	2,866.41	27	
4		12		20		28	
5	3,212.61	13		21		29	
6		14		22		30	
7		15		23		31	
8		16		24			

Tax liability for Month 2

6,079.02

Month 3

1		9		17		25	
2	3,212.78	10		18		26	
3		11		19		27	
4		12		20		28	
5		13		21		29	
6		14		22		30	3,175.22
7		15		23		31	
8		16	3,358.68	24			

Tax liability for Month 3

9,746.68

Fill in your total liability for the quarter (Month 1 + Month 2 + Month 3) ▶

Total must equal line 12 on Form 941 or Form 941-SS.

Total liability for the quarter

21,675.91

Form **941 for 2023: Employer's QUARTERLY Federal Tax Return**

(Rev. March 2023)

Department of the Treasury -- Internal Revenue Service

OMB No. 1545-0029

Employer identification number (EIN)	4	5	-	1	2	9	2	3	4	2
Name (not your trade name)	EAST DUNKARD WATER AUTHORITY									
Trade name (if any)										
Address	PO BOX 241 ROUTE 88									
	Number		Street					Suite or room number		
	DILLINER		PA					15327		
	City		State		ZIP code					
	Foreign country name			Foreign province/county			Foreign postal code			

**Report for this Quarter of 2023
(Check one.)**

- ☐ 1: January, February, March
- ☐ 2: April, May, June
- ☒ 3: July, August, September
- ☐ 4: October, November, December

Go to www.irs.gov/Form941 for instructions and the latest information.

Read the separate instructions before you complete Form 941. Type or print within the boxes.

Part 1: Answer these questions for this quarter.

1	Number of employees who received wages, tips, or other compensation for the pay period including: Mar. 12 (Quarter 1), June 12 (Quarter 2), Sept. 12 (Quarter 3), or Dec. 12 (Quarter 4) . . . 1	8
2	Wages, tips, and other compensation 2	81,746.57
3	Federal income tax withheld from wages, tips, and other compensation 3	4,781.07
4	If no wages, tips, and other compensation are subject to social security or Medicare tax ☐ Check and go to line 6.	
	Column 1	Column 2
5a	Taxable social security wages* 81,746.57 × 0.124 =	10,136.57
5a (i)	Qualified sick leave wages* × 0.062 =	.
5a (ii)	Qualified family leave wages* × 0.062 =	.
5b	Taxable social security tips × 0.124 =	.
5c	Taxable Medicare wages & tips 81,746.57 × 0.029 =	2,370.65
5d	Taxable wages & tips subject to Additional Medicare Tax withholding × 0.009 =	.
5e	Total social security and Medicare taxes. Add Column 2 from lines 5a, 5a(i), 5a(ii), 5b, 5c, and 5d	12,507.22
5f	Section 3121(q) Notice and Demand —Tax due on unreported tips (see instructions) 5f	.
6	Total taxes before adjustments. Add lines 3, 5e, and 5f 6	17,288.29
7	Current quarter's adjustment for fractions of cents 7	.06
8	Current quarter's adjustment for sick pay 8	.
9	Current quarter's adjustments for tips and group-term life insurance 9	.
10	Total taxes after adjustments. Combine lines 6 through 9 10	17,288.35
11a	Qualified small business payroll tax credit for increasing research activities. Attach Form 8974 11a	.
11b	Nonrefundable portion of credit for qualified sick and family leave wages for leave taken before April 1, 2021 11b	.
11c	Reserved for future use 11c	.

*Include taxable qualified sick and family leave wages paid in this quarter of 2023 for leave taken after March 31, 2021, and before October 1, 2021, on line 5a. Use lines 5a(i) and 5a(ii) **only** for taxable qualified sick and family leave wages paid in this quarter of 2023 for leave taken after March 31, 2020, and before April 1, 2021.

► You MUST complete all three pages of Form 941 and SIGN it.

Name (not your trade name) EAST DUNKARD WATER AUTHORITY	Employer identification number (EIN) 45-1292342

Part 1: Answer these questions for this quarter. (continued)

11d Nonrefundable portion of credit for qualified sick and family leave wages for leave taken after March 31, 2021, and before October 1, 2021 11d

11e Reserved for future use 11e

11f Reserved for future use

11g Total nonrefundable credits. Add lines 11a, 11b, and 11d 11g

12 Total taxes after adjustments and nonrefundable credits. Subtract line 11g from line 10 12

13a Total deposits for this quarter, including overpayment applied from a prior quarter and overpayments applied from Form 941-X, 941-X (PR), 944-X, or 944-X (SP) filed in the current quarter 13a

13b Reserved for future use 13b

13c Refundable portion of credit for qualified sick and family leave wages for leave taken before April 1, 2021 13c

13d Reserved for future use 13d

13e Refundable portion of credit for qualified sick and family leave wages for leave taken after March 31, 2021, and before October 1, 2021 13e

13f Reserved for future use. 13f

13g Total deposits and refundable credits. Add lines 13a, 13c, and 13e 13g

13h Reserved for future use 13h

13i Reserved for future use 13i

14 Balance due. If line 12 is more than line 13g, enter the difference and see instructions 14

15 Overpayment. If line 13g is more than line 12, enter the difference Check one: ☐ Apply to next return ☐ Send a refund.

Part 2: Tell us about your deposit schedule and tax liability for this quarter.

If you're unsure about whether you're a monthly schedule depositor or a semiweekly schedule depositor, see section 11 of Pub. 15.

- 16 Check one: ☐ Line 12 on this return is less than \$2,500 or line 12 on the return for the prior quarter was less than \$2,500, and you didn't incur a \$100,000 next-day deposit obligation during the current quarter. If line 12 for the prior quarter was less than \$2,500 but line 12 on this return is \$100,000 or more, you must provide a record of your federal tax liability. If you're a monthly schedule depositor, complete the deposit schedule below; if you're a semiweekly schedule depositor, attach Schedule B (Form 941). Go to Part 3.
- ☐ You were a monthly schedule depositor for the entire quarter. Enter your tax liability for each month and total liability for the quarter, then go to Part 3.

Tax liability: Month 1

Month 2

Month 3

Total liability for quarter Total must equal line 12.

- ☒ You were a semiweekly schedule depositor for any part of this quarter. Complete Schedule B (Form 941), Report of Tax Liability for Semiweekly Schedule Depositors, and attach it to Form 941. Go to Part 3.

► You MUST complete all three pages of Form 941 and SIGN it.

Name (not your trade name)

EAST DUNKARD WATER AUTHORITY

Employer identification number (EIN)

45-1292342

Part 3: Tell us about your business. If a question does NOT apply to your business, leave it blank.

17 If your business has closed or you stopped paying wages ☐ Check here, and enter the final date you paid wages ; also attach a statement to your return. See instructions.

18 If you're a seasonal employer and you don't have to file a return for every quarter of the year . . . ☐ Check here.

19 Qualified health plan expenses allocable to qualified sick leave wages for leave taken before April 1, 2021 **19** .

20 Qualified health plan expenses allocable to qualified family leave wages for leave taken before April 1, 2021 **20** .

21 Reserved for future use **21** .

22 Reserved for future use **22** .

23 Qualified sick leave wages for leave taken after March 31, 2021, and before October 1, 2021 **23** .

24 Qualified health plan expenses allocable to qualified sick leave wages reported on line 23 . . . **24** .

25 Amounts under certain collectively bargained agreements allocable to qualified sick leave wages reported on line 23 **25** .

26 Qualified family leave wages for leave taken after March 31, 2021, and before October 1, 2021 **26** .

27 Qualified health plan expenses allocable to qualified family leave wages reported on line 26 . . **27** .

28 Amounts under certain collectively bargained agreements allocable to qualified family leave wages reported on line 26 **28** .

Part 4: May we speak with your third-party designee?

Do you want to allow an employee, a paid tax preparer, or another person to discuss this return with the IRS? See the instructions for details.

☐ Yes. Designee's name and phone number

Select a 5-digit personal identification number (PIN) to use when talking to the IRS.

☒ No.

Part 5: Sign here. You MUST complete all three pages of Form 941 and SIGN it.

Under penalties of perjury, I declare that I have examined this return, including accompanying schedules and statements, and to the best of my knowledge and belief, it is true, correct, and complete. Declaration of preparer (other than taxpayer) is based on all information of which preparer has any knowledge.

X**Sign your name here**REFERENCE COPY PREPARED BY PAYCHEX
DO NOT FILE

Print your name here

Print your title here

Date

Best daytime phone

Paid Preparer Use OnlyCheck if you're self-employed ☐

Preparer's name

PTIN

Preparer's signature

Date

Firm's name (or yours if self-employed)

EIN

Address

Phone

City

State

ZIP code

Schedule B (Form 941):

Report of Tax Liability for Semiweekly Schedule Depositors

(Rev. January 2017)

Department of the Treasury -- Internal Revenue Service

OMB No. 1545-0029

Employer identification number (EIN)

4

5

-

1

2

9

2

3

4

2

Name (not your trade name)

EAST DUNKARD WATER AUTHORITY

Calendar year

2

0

2

3

(Also check quarter)

Report for this Quarter ...
(Check one.)

☐ 1: January, February, March

☐ 2: April, May, June

☒ 3: July, August, September

☐ 4: October, November, December

Use this schedule to show your TAX LIABILITY for the quarter; don't use it to show your deposits. When you file this form with Form 941 or Form 941-SS, don't change your tax liability by adjustments reported on any Forms 941-X or 944-X. You must fill out this form and attach it to Form 941 or Form 941-SS if you're a semiweekly schedule depositor or became one because your accumulated tax liability on any day was \$100,000 or more. Write your daily tax liability on the numbered space that corresponds to the date wages were paid. See Section 11 in Pub. 15 for details.

Month 1

1		9		17		25	
2		10		18		26	
3		11		19		27	
4		12		20		28	2,600.43
5		13		21		29	
6		14	2,836.67	22		30	
7		15		23		31	
8		16		24			

Tax liability for Month 1

5,437.10

Month 2

1		9		17		25	2,915.82
2		10		18		26	
3		11	2,966.82	19		27	
4		12		20		28	
5		13		21		29	
6		14		22		30	
7		15		23		31	
8		16		24			

Tax liability for Month 2

5,882.64

Month 3

1		9		17		25	
2		10		18		26	
3		11		19		27	
4		12		20		28	
5		13		21		29	
6		14		22	2,977.46	30	
7		15		23		31	
8	2,991.15	16		24			

Tax liability for Month 3

5,968.61

Fill in your total liability for the quarter (Month 1 + Month 2 + Month 3) ▶

Total must equal line 12 on Form 941 or Form 941-SS.

Total liability for the quarter

17,288.35

Form **941 for 2023: Employer's QUARTERLY Federal Tax Return**

(Rev. March 2023)

Department of the Treasury -- Internal Revenue Service

OMB No. 1545-0029

Employer identification number (EIN)	4	5	-	1	2	9	2	3	4	2
Name (not your trade name)	EAST DUNKARD WATER AUTHORITY									
Trade name (if any)										
Address	PO BOX 241 ROUTE 88									
	Number		Street		Suite or room number					
	DILLINER		PA		15327					
	City		State		ZIP code					
	Foreign country name		Foreign province/county		Foreign postal code					

**Report for this Quarter of 2023
(Check one.)**

- ☐ 1: January, February, March
- ☐ 2: April, May, June
- ☐ 3: July, August, September
- ☒ 4: October, November, December

Go to www.irs.gov/Form941 for instructions and the latest information.

Read the separate instructions before you complete Form 941. Type or print within the boxes.

Part 1: Answer these questions for this quarter.

1	Number of employees who received wages, tips, or other compensation for the pay period including: Mar. 12 (Quarter 1), June 12 (Quarter 2), Sept. 12 (Quarter 3), or Dec. 12 (Quarter 4) . . . 1		8
2	Wages, tips, and other compensation 2		89,559.52
3	Federal income tax withheld from wages, tips, and other compensation 3		5,704.63
4	If no wages, tips, and other compensation are subject to social security or Medicare tax ☐ Check and go to line 6.		
		Column 1	Column 2
5a	Taxable social security wages* . . .	89,559.52 × 0.124 =	11,105.38
5a (i)	Qualified sick leave wages* . . .	. × 0.062 =	.
5a (ii)	Qualified family leave wages* . . .	. × 0.062 =	.
5b	Taxable social security tips . . .	. × 0.124 =	.
5c	Taxable Medicare wages & tips . . .	89,559.52 × 0.029 =	2,597.23
5d	Taxable wages & tips subject to Additional Medicare Tax withholding . . .	. × 0.009 =	.
5e	Total social security and Medicare taxes. Add Column 2 from lines 5a, 5a(i), 5a(ii), 5b, 5c, and 5d	5e	13,702.61
5f	Section 3121(q) Notice and Demand —Tax due on unreported tips (see instructions) . . .	5f	.
6	Total taxes before adjustments. Add lines 3, 5e, and 5f 6		19,407.24
7	Current quarter's adjustment for fractions of cents 7		.06
8	Current quarter's adjustment for sick pay 8		.
9	Current quarter's adjustments for tips and group-term life insurance 9		.
10	Total taxes after adjustments. Combine lines 6 through 9 10		19,407.30
11a	Qualified small business payroll tax credit for increasing research activities. Attach Form 8974	11a	.
11b	Nonrefundable portion of credit for qualified sick and family leave wages for leave taken before April 1, 2021 11b		.
11c	Reserved for future use 11c		.

*Include taxable qualified sick and family leave wages paid in this quarter of 2023 for leave taken after March 31, 2021, and before October 1, 2021, on line 5a. Use lines 5a(i) and 5a(ii) **only** for taxable qualified sick and family leave wages paid in this quarter of 2023 for leave taken after March 31, 2020, and before April 1, 2021.

► You MUST complete all three pages of Form 941 and SIGN it.

Name (not your trade name) EAST DUNKARD WATER AUTHORITY	Employer identification number (EIN) 45-1292342

Part 1: Answer these questions for this quarter. (continued)

11d Nonrefundable portion of credit for qualified sick and family leave wages for leave taken after March 31, 2021, and before October 1, 2021 **11d**

11e Reserved for future use **11e**

11f Reserved for future use

11g Total nonrefundable credits. Add lines 11a, 11b, and 11d **11g**

12 Total taxes after adjustments and nonrefundable credits. Subtract line 11g from line 10 **12** 19,407.30

13a Total deposits for this quarter, including overpayment applied from a prior quarter and overpayments applied from Form 941-X, 941-X (PR), 944-X, or 944-X (SP) filed in the current quarter **13a** 19,407.30

13b Reserved for future use **13b**

13c Refundable portion of credit for qualified sick and family leave wages for leave taken before April 1, 2021 **13c**

13d Reserved for future use **13d**

13e Refundable portion of credit for qualified sick and family leave wages for leave taken after March 31, 2021, and before October 1, 2021 **13e**

13f Reserved for future use. **13f**

13g Total deposits and refundable credits. Add lines 13a, 13c, and 13e **13g** 19,407.30

13h Reserved for future use **13h**

13i Reserved for future use **13i**

14 Balance due. If line 12 is more than line 13g, enter the difference and see instructions **14**

15 Overpayment. If line 13g is more than line 12, enter the difference . Check one: ☐ Apply to next return ☐ Send a refund.

Part 2: Tell us about your deposit schedule and tax liability for this quarter.

If you're unsure about whether you're a monthly schedule depositor or a semiweekly schedule depositor, see section 11 of Pub. 15.

- 16** Check one: ☐ Line 12 on this return is less than \$2,500 or line 12 on the return for the prior quarter was less than \$2,500, and you didn't incur a \$100,000 next-day deposit obligation during the current quarter. If line 12 for the prior quarter was less than \$2,500 but line 12 on this return is \$100,000 or more, you must provide a record of your federal tax liability. If you're a monthly schedule depositor, complete the deposit schedule below; if you're a semiweekly schedule depositor, attach Schedule B (Form 941). Go to Part 3.
- ☐ You were a monthly schedule depositor for the entire quarter. Enter your tax liability for each month and total liability for the quarter, then go to Part 3.

Tax liability: Month 1 Month 2 Month 3 Total liability for quarter

Total must equal line 12.



You were a semiweekly schedule depositor for any part of this quarter. Complete Schedule B (Form 941), Report of Tax Liability for Semiweekly Schedule Depositors, and attach it to Form 941. Go to Part 3.

► You MUST complete all three pages of Form 941 and SIGN it.

Name (not your trade name)

EAST DUNKARD WATER AUTHORITY

Employer identification number (EIN)

45-1292342

Part 3: Tell us about your business. If a question does NOT apply to your business, leave it blank.

17 If your business has closed or you stopped paying wages ☐ Check here, and enter the final date you paid wages ; also attach a statement to your return. See instructions.

18 If you're a seasonal employer and you don't have to file a return for every quarter of the year . . . ☐ Check here.

19 Qualified health plan expenses allocable to qualified sick leave wages for leave taken before April 1, 2021 **19** .

20 Qualified health plan expenses allocable to qualified family leave wages for leave taken before April 1, 2021 **20** .

21 Reserved for future use **21** .

22 Reserved for future use **22** .

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27 Qualified health plan expenses allocable to qualified family leave wages reported on line 26 . . **27** .

28 Amounts under certain collectively bargained agreements allocable to qualified family leave wages reported on line 26 **28** .

Part 4: May we speak with your third-party designee?

Do you want to allow an employee, a paid tax preparer, or another person to discuss this return with the IRS? See the instructions for details.

☐ Yes. Designee's name and phone number

Select a 5-digit personal identification number (PIN) to use when talking to the IRS.

☒ No.

Part 5: Sign here. You MUST complete all three pages of Form 941 and SIGN it.

Under penalties of perjury, I declare that I have examined this return, including accompanying schedules and statements, and to the best of my knowledge and belief, it is true, correct, and complete. Declaration of preparer (other than taxpayer) is based on all information of which preparer has any knowledge.

X**Sign your name here**REFERENCE COPY PREPARED BY PAYCHEX
DO NOT FILE

Print your name here

Print your title here

Date

Best daytime phone

Paid Preparer Use OnlyCheck if you're self-employed ☐

Preparer's name

PTIN

Preparer's signature

Date

Firm's name (or yours if self-employed)

EIN

Address

Phone

City

State

ZIP code

Schedule B (Form 941):

Report of Tax Liability for Semiweekly Schedule Depositors

(Rev. January 2017)

Department of the Treasury -- Internal Revenue Service

OMB No. 1545-0029

Employer identification number (EIN)

4

5

-

1

2

9

2

3

4

2

Name (not your trade name)

EAST DUNKARD WATER AUTHORITY

Calendar year

2

0

2

3

(Also check quarter)

Report for this Quarter ...
(Check one.)

☐ 1: January, February, March

☐ 2: April, May, June

☐ 3: July, August, September

☒ 4: October, November, December

Use this schedule to show your TAX LIABILITY for the quarter; don't use it to show your deposits. When you file this form with Form 941 or Form 941-SS, don't change your tax liability by adjustments reported on any Forms 941-X or 944-X. You must fill out this form and attach it to Form 941 or Form 941-SS if you're a semiweekly schedule depositor or became one because your accumulated tax liability on any day was \$100,000 or more. Write your daily tax liability on the numbered space that corresponds to the date wages were paid. See Section 11 in Pub. 15 for details.

Month 1

1		9		17		25	
2		10		18		26	
3		11		19		27	
4		12		20	2,843.96	28	
5		13		21		29	
6	2,878.25	14		22		30	
7		15		23		31	
8		16		24			

Tax liability for Month 1

5,722.21

Month 2

1		9		17	2,487.90	25	
2		10		18		26	
3	4,065.06	11		19		27	
4		12		20		28	
5		13		21		29	
6		14		22		30	
7		15		23		31	
8		16		24			

Tax liability for Month 2

6,552.96

Month 3

1	2,873.68	9		17		25	
2		10		18		26	
3		11		19		27	
4		12		20		28	
5		13		21		29	2,252.94
6		14		22		30	
7		15	2,005.51	23		31	
8		16		24			

Tax liability for Month 3

7,132.13

Fill in your total liability for the quarter (Month 1 + Month 2 + Month 3) ►

Total must equal line 12 on Form 941 or Form 941-SS.

Total liability for the quarter

19,407.30

Application of Pennsylvania-American Water Company for approval of the right to: (1) acquire substantially all of the East Dunkard Water Authority's assets, properties and rights related to its water system to Pennsylvania-American Water Company, and (2) begin to offer, render, furnish or supply water service to the public in Dunkard, and portions of Monongahela, Greene, Cumberland, Perry, and Whiteley Townships, Greene County, Pennsylvania

Docket No. A-2024-3049759

PAWC's Responses to TUS Set I

A-13. Please provide a copy of East Dunkard Water Association's federal tax returns for 2022 and 2023.

Response: Neither PAWC nor East Dunkard Water Authority has in its possession East Dunkard Water Association's federal tax returns and do not believe any exist for 2022 or 2023.

Responsible Witness: Don Wieczenski, Director – Business Development
Pennsylvania-American Water Company

Date: July 25, 2024

Application of Pennsylvania-American Water Company for approval of the right to: (1) acquire substantially all of the East Dunkard Water Authority's assets, properties and rights related to its water system to Pennsylvania-American Water Company, and (2) begin to offer, render, furnish or supply water service to the public in Dunkard, and portions of Monongahela, Greene, Cumberland, Perry, and Whiteley Townships, Greene County, Pennsylvania

Docket No. A-2024-3049759

PAWC's Responses to TUS Set I

A-14. In Section 16 of the Amended Application, PAWC indicated that a preliminary analysis indicated the depreciated original cost (DOC) of the system is greater than the purchase price. Please provide a copy of the preliminary analysis of the EDWA System's DOC.

Response: Please refer to **TUS A-14-1_Attachment** Preliminary DOC Analysis. The estimated original cost as of December 31, 2022, was approximately \$9.8M with most of the original cost related to the project funded by a PennVest loan (\$6.1M) and a grant (\$2.2M). Please refer to **TUS A-14-2_Attachment** for project details from the PennVest website. EDWA provided other documentation that indicated the non-PennVest assets were approximately \$1.5M. An estimated DOC of \$6.0M was calculated as follows:

Original Cost	\$9.8M
Less: CIAC	<u>(\$2.2M)</u>
	\$7.6M
Less: Accum. Depr.	<u>(\$1.6M)</u> (based on 21%)
Estimate DOC	\$6.0M

As mentioned in Section 16 of the Amended Application, PAWC intends to undertake an original cost study to determine the original cost and accumulated depreciation of EDWA's utility plant in service.

Responsible Witness: Michael Salvo, Director – Business Development
Pennsylvania-American Water Company

Date: July 25, 2024

EAST DUNKARD WATER AUTHORITY
 ESTIMATED ORIGINAL COST AT 12/31/2022

NARUC ACCT #	ASSET #	DESCRIPTION	DATE INSTALLED	YEAR	ESTIMATED ORIGINAL COST
303	1	LAND	07/15/86	1986	\$ 20,000.00
303	2	RIGHT OF WAYS	07/15/86	1986	1,000.00
303	3	RIGHT OF WAYS	07/15/86	1986	250.00
303	4	RIGHT OF WAYS	07/15/86	1986	3,000.00
303	5	WEST PENN POWER	01/31/91	1991	29,250.00
303	6	RIGT OF WAY	03/01/91	1991	2,000.00
303	7	LAND - SUGAR GROVE	05/26/92	1992	700.00
303	8	RIGT OF WAY - BALD HILL	12/01/93	1993	3,000.00
303	27	RIGHT OF WAYS	06/27/11	2011	10,219.00
303		CLARK TANK LAND D...	04/20/11	2011	501.00
303	38	RIGHT OF WAY - FILAGGI	07/23/12	2012	44.00
303	45	RIGHT OF WAY - NORFOLK SO	01/07/13	2013	20.00
					\$ 69,984.00
304.2	28	BALD HILL PUMP COVER	12/05/12	2012	\$ 3,577.60
304.2		STRUCTURES - PUMPING		2013	801,876.67
304.2	56	Heat Pump System (Outdoor Unit)	02/24/16	2016	6,340.00
304.2	54	HVAC Unit High Service Pump Sta	08/25/16	2016	2,791.00
					\$ 814,585.27
304.3	1	UTILITY PLANT	07/01/01	2001	\$ 500,000.00
304.3		STRUCTURES - TREATMENT		2013	1,602,357.42
304.3		3 VERTICAL MINI BLIN...	10/15/18	2018	300.00
304.3		OFFICE DECOR MISC	09/20/19	2019	450.00
					\$ 2,103,107.42
304.4		STRUCTURES - DISTRIBUTION		2013	\$ 972,954.62
310		POWER GENERATION EQUIPMENT		2013	\$ 179,467.91
311	141	GREENE TWP PUMP & ACCES	08/29/90	1990	\$ 3,729.00
311	159	BROOKOVER PUMP	03/13/03	2003	750.00
311		ROCKY HOLLOW PU...	04/14/11	2011	700.00
311		WILLOW TREE PUMP ...	04/27/11	2011	3,001.00
311	59	Supplemental Pump for Filter Back	06/15/16	2016	71,985.00
311	62	2 Variable Frequency Drives	03/22/17	2017	3,109.50
311	63	Variable Frequency Drive	09/15/17	2017	2,049.00
311	70	Variable Frequency Drive	09/23/19	2019	7,600.00
311	71	Variable Frequency Drive	05/05/20	2020	2,689.00
311	72	Variable Frequency Drive	06/09/20	2020	2,689.00
311	73	Variable Frequency Drive	11/30/20	2020	5,178.00
					\$ 103,479.50
320		TREATMENT EQUIPMENT		2013	\$ 1,296,960.57
320		REGAL CHLORINATO...	02/19/19	2019	8,775.00
320		SCALETRON DRUM S...	09/10/20	2020	3,848.00
320		HACH UNIVERSAL CO...	03/01/22	2022	9,000.00
320		HACH CL17 CHLORIN...	03/06/22	2022	3,166.00
320		HACH CL10 CHLORIN...	03/10/22	2022	5,800.00
					\$ 1,327,549.57
330	35	TANK & LINE ADDITIONS	01/01/85	1985	\$ 31,496.00
330	80	ALICIA TANK VALVES	12/09/93	1993	4,116.00
330	105	CLARK TANK FLOAT	08/10/00	2000	478.00
330		SUGAR GROVE TANK...	05/05/11	2011	2,001.00
330		DISTRIBUTION RESERVOIRS & STANDPIPES		2012	953,778.61
					\$ 991,869.61

EAST DUNKARD WATER AUTHORITY
ESTIMATED ORIGINAL COST AT 12/31/2022

NARUC ACCT #	ASSET #	DESCRIPTION	DATE INSTALLED	YEAR	ESTIMATED ORIGINAL COST
331	135	BOBTOWN PROJECT	06/01/83	1983	\$ 12,500.00
331	134	PIPE/EXTENSION	01/01/84	1984	1,036.00
331	133	BLASTING/LINE EXTENSION	02/13/84	1984	128.00
331	136	GREENE TWP WATERLINE EXT	07/01/90	1990	51,269.00
331	137	MONONGAHELA TWP WATERLINE	07/01/90	1990	13,297.00
331	138	CORPS OF ENG WATERLINE	09/01/90	1990	56,456.00
331	62	VALVE VAULT	07/11/91	1991	1,520.00
331	140	WEST PENN POWER PROJECT	08/16/91	1991	200,616.00
331	139	GREENE TWP #2	09/26/91	1991	31,344.00
331	131	BALD HILL PROJECT	11/12/93	1993	8,520.00
331	132	KIRBY REST STOP	12/20/93	1993	15,610.00
331	142	BALD HILL PROJECT	10/20/94	1994	32,474.00
331	143	ROCKY RIDGE ROAD PROJECT	12/01/94	1994	9,682.00
331	166	CEYLON ROAD PROJECT	08/31/05	2005	12,284.00
331	170	CONCRETE PIT	04/07/06	2006	1,096.00
331		TRANSMISSION & DISTRIBUTION MAINS		2013	1,466,729.05
331	61	Meter Pit	04/13/17	2017	2,974.92
					<u>\$ 1,917,535.97</u>
333		SERVICES		2013	\$ 607.52
334		METERS & METER INSTALLATIONS		2012	\$ 752,437.38
334	69	Meter System Upgrade	09/16/19	2019	16,555.38
					<u>\$ 768,992.76</u>
335		FIRE HYDRANTS		2013	\$ 52,004.36
340	12	DESKS	07/01/11	2011	\$ 375.00
340	13	FILES	07/01/11	2011	375.00
340	14	CHAIRS	07/01/11	2011	375.00
340	15	TABLES	07/01/11	2011	375.00
340	16	SHARP COPIER MODEL AR	07/01/11	2011	500.00
340	17	PERSONAL COMPUTER	07/01/11	2011	387.50
340	18	PRINTER - ALL IN ONE	07/01/11	2011	387.50
340	26	COMPUTER	12/08/11	2011	1,342.87
340		OFFICE FURNITURE & EQUIPMENT		2012	26,224.70
340	31	COMPUTER SOFTWARE	01/01/12	2012	501.89
340	33	OFFICE FURNITURE	02/09/12	2012	800.00
340	35	CONFERENCE TABLE AND CH	03/08/12	2012	400.00
340		HP LASER JET P3015 ...	05/01/14	2014	350.00
340		HP OFFICE JET PRO ...	06/20/14	2014	350.00
340	51	MODEMS	01/26/15	2015	3,200.00
340	49	HP LASER JET PRINTER	03/17/15	2015	886.35
340	48	COMPUTER	08/04/15	2015	370.98
340		OFFICE CHAIRS QTY 5	09/01/16	2016	1,250.00
340		MULTIPARAMETER P...	02/02/22	2022	1,920.00
340		SAMSUNG TABLET	04/15/22	2022	650.00
340		LENOVO THINKCENT...	05/31/22	2022	1,050.00
340		LENOVO THINKCENT...	05/31/22	2022	1,050.00
340		LENOVO THINKCENT...	05/31/22	2022	1,050.00
340		LENOVO THINKCENT...	05/31/22	2022	1,050.00
340		LENOVO THINKCENT...	05/31/22	2022	1,050.00
340		LENOVO THINKVISIO...	05/31/22	2022	295.00
340		LENOVO THINKVISIO ...	05/31/22	2022	295.00
340		LENOVO THINKVISIO...	05/31/22	2022	295.00
340		LENOVO THINKVISIO...	05/31/22	2022	295.00
340		LENOVO THINKVISIO...	05/31/22	2022	295.00
340		LENOVO THINKVISIO...	05/31/22	2022	295.00

TUS-A-14-1_Attachment

EAST DUNKARD WATER AUTHORITY
ESTIMATED ORIGINAL COST AT 12/31/2022

NARUC ACCT #	ASSET #	DESCRIPTION	DATE INSTALLED	YEAR	ESTIMATED ORIGINAL COST
					\$ 48,041.79
341	24	FORD F-350 DUMP TRUCK	07/01/11	2011	\$ 4,000.00
341	29	2012 GMC TRUCK	05/22/12	2012	21,743.00
341	30	2012 GMC TRUCK	05/22/12	2012	21,743.00
341	64	FORD F-650 CREW CAB TRUCK	03/15/18	2018	20,000.00
341	65	19' ALUMINUM KYLAR B	03/15/18	2018	5,000.00
					\$ 72,486.00
343	4	TROYBILT PORTABLE GENERA	07/01/11	2011	\$ 540.00
343	5	NATIONAL DRAGER AIR PACK	07/01/11	2011	540.00
343	6	KAWASKI TRASH PUMP GAS...	07/01/11	2011	540.00
343		TOOLS, SHOP & GARAGE EQUIPMENT		2012	2,030.30
343	32	SIGN	02/02/12	2012	1,975.00
343	34	FLUORIDE PUMP	02/09/12	2012	1,637.08
343	39	FLUORIDE PUMP	08/22/12	2012	772.00
343	40	WEED TRIMMER	09/13/12	2012	405.93
343	47	BRUSH HOG FOR SKIDSTEER	05/12/14	2014	3,300.00
343	50	WATER TANK	04/03/15	2015	374.25
343	57	4 Seasons Weed Trimmer	05/19/16	2016	477.09
343	58	Atlantis EWN Series Pump	06/06/16	2016	570.00
343		DIGITAL CYLINDERS ...	11/02/19	2019	7,696.00
343		APER A BENCHTOP T...	04/01/22	2022	730.00
343		3 METAL DESK ORGA...	05/01/22	2022	80.00
343		DAHLE SHREDMATIC ...	05/09/22	2022	569.00
343		CANON IMAGE RUNN...	05/10/22	2022	7,980.00
					\$ 30,216.65
344	8	HACH TURBIDMETER MODEL	07/01/11	2011	\$ 350.00
344	9	6 - PLACE LAB STIRRER	07/01/11	2011	350.00
344	10	PWS - MIDI STILL MODEL	07/01/11	2011	350.00
344	42	HACH DR/850 COLORIMETER	03/12/12	2012	1,250.95
344	41	HACH H260G PH MONITOR	05/21/12	2012	1,190.55
344	52	SOLENOID COILS	04/29/15	2015	7,045.00
344	55	Chlorinator System	03/11/16	2016	3,220.00
344	66	Digital Dual Cylinder Scale	02/21/19	2019	2,087.77
344	67	Cryptosporidium Computer Monitor	07/08/19	2019	5,000.00
344	68	Processor for Control Panel	07/18/19	2019	6,000.00
344		REGAL GAS DETECT...	05/22/19	2019	2,350.00
344		WATER QUALITY ANA...	01/15/22	2022	1,920.00
					\$ 31,114.27
345	181	BOBCAT	12/24/09	2009	\$ 23,500.00
345	184	CAT SKID STEER LOADER	06/14/11	2011	24,910.00
345	20	1991 FORD TRACTOR BACKHO	07/01/11	2011	9,500.00
345	53	EXCAVATOR	07/01/15	2015	46,311.00
					\$ 104,221.00
346	36	2 MOTOROLA RADIOS	05/17/12	2012	\$ 1,565.62
346	37	BASE RADIO	06/26/12	2012	1,738.00
346		COMMUNICATION EQUIPMENT (SCADA)		2013	169,789.89
346		MITEL PHONES (6)	04/05/22	2022	4,500.00
					\$ 177,593.51
		TOTAL ORIGINAL COST			\$ 9,765,811.73
		ASSETS FUNDED BY GRANT INCLUDED ABOVE		2013	\$ (2,204,025.00)

East Dunkard Wtr Auth (formerly Assoc) – System Improvements

x

County/Municipality: Greene/Dunkard Township	2790 South Eighty Eight
Loan Amount: \$6,073,194.00	Dilliner, PA 15327
Grant Amount: \$2,204,025.00	
Interest Rate 1: 1	
Interest Rate 2: 1	Green: No
Term of Loan: 240 months	Status: Final Amortization
Total Project Cost: \$8,277,219.00	Source: State
Approval Date: 4/20/2011	Type: Drinking Water
Number of Households: 1590	Program:

Description:

Upgrade of the existing water treatment plant including replacement of water intake pumps, repair of the primary clarifier, replacement of existing filters with a rapid sand filter system, along with the construction of three new water storage tanks, as well as the replacement of approximately 40,000 linear feet of waterlines in various areas of the system. This is an existing system that serves approximately 1,600 customers in this primarily low income area. User fees are expected to increase by 5%.

Application of Pennsylvania-American Water Company for approval of the right to: (1) acquire substantially all of the East Dunkard Water Authority's assets, properties and rights related to its water system to Pennsylvania-American Water Company, and (2) begin to offer, render, furnish or supply water service to the public in Dunkard, and portions of Monongahela, Greene, Cumberland, Perry, and Whiteley Townships, Greene County, Pennsylvania

Docket No. A-2024-3049759

PAWC's Responses to TUS Set I

A-15. In Section 18 of the Amended Application, PAWC listed tentative journal entries without the associated account numbers in conformance with the National Association of Regulatory Utility Commissioners Uniform System of Accounts for Class A Water Utilities (NARUC). Please provide the NARUC account numbers associated with each tentative journal entry.

Response: Refer to the table below for the NARUC account numbers associated with the tentative journal entries for the acquisition of East Dunkard Water Authority.

NARUC Account - Description		Debit	Credit
Acct. 104 - Utility Plant Purchased or Sold		\$5,000,000.00	
Acct. 131 - Cash / Acct. 234 - Short Term Debt			\$5,000,000.00

Responsible Witness: Stacey Gress – Director, Rates and Regulatory
Pennsylvania-American Water Company

Date: July 25, 2024

Application of Pennsylvania-American Water Company for approval of the right to: (1) acquire substantially all of the East Dunkard Water Authority's assets, properties and rights related to its water system to Pennsylvania-American Water Company, and (2) begin to offer, render, furnish or supply water service to the public in Dunkard, and portions of Monongahela, Greene, Cumberland, Perry, and Whiteley Townships, Greene County, Pennsylvania

Docket No. A-2024-3049759

PAWC's Responses to TUS Set I

A-16. In Section 42 of the Amended Application, PAWC indicated that the EDWA System will be operated as a satellite system from PAWC's nearby Uniontown Operations District. Please provide the distance from the EDWA System to PAWC's Uniontown Operations district.

Response: EDMA's water system is approximately 7 miles from PAWC's Uniontown Operations district.

Responsible Witness: Michael Salvo, Director – Business Development
Pennsylvania-American Water Company

Date: July 25, 2024

Application of Pennsylvania-American Water Company for approval of the right to: (1) acquire substantially all of the East Dunkard Water Authority's assets, properties and rights related to its water system to Pennsylvania-American Water Company, and (2) begin to offer, render, furnish or supply water service to the public in Dunkard, and portions of Monongahela, Greene, Cumberland, Perry, and Whiteley Townships, Greene County, Pennsylvania

Docket No. A-2024-3049759

PAWC's Responses to TUS Set I

A-17. The Amended Application's Appendix A included a copy of the amended asset purchase agreement (Amended APA). Section 4.1.(h) of the Amended APA, provides a reference to "Section Error! Reference source not found". Please specify the Schedule on which the Free Service; Customer List; Prepayments can be found.

Response: It is intended by the parties to reference Section 6.1(i) - Customer List.

**Responsible Witness: Michael Salvo, Director – Business Development
Pennsylvania-American Water Company**

Date: July 25, 2024

Application of Pennsylvania-American Water Company for approval of the right to: (1) acquire substantially all of the East Dunkard Water Authority's assets, properties and rights related to its water system to Pennsylvania-American Water Company, and (2) begin to offer, render, furnish or supply water service to the public in Dunkard, and portions of Monongahela, Greene, Cumberland, Perry, and Whiteley Townships, Greene County, Pennsylvania

Docket No. A-2024-3049759

PAWC's Responses to TUS Set I

A-18. The Amended APA's Exhibit A, Assignment of Contracts Agreement (Assigned Contracts Agreement) referenced a list of the Seller's contracts, agreements and arrangements, as being attached hereto and made part hereof of the Assigned Contracts Agreement as Exhibit A. However, no copy of Exhibit A was attached to the Assigned Contracts Agreement. Please provide a copy of the Assigned Contracts Agreement's Exhibit A.

Response: The Amended APA's Exhibit A, Assignment of Contracts Agreement is only a form of agreement. This agreement will be finalized and executed at the time of closing, if applicable. At the time of the APA signing, there were no Assigned Contracts identified and listed in Schedule 5.1(c). If any contracts are identified that PAWC intends to take assignment of at closing, an Assignment of Contracts Agreement will be executed that includes an Exhibit A listing such contracts and APA schedules will be updated to reflect these contracts.

**Responsible Witness: Michael Salvo, Director – Business Development
Pennsylvania-American Water Company**

Date: July 25, 2024

Application of Pennsylvania-American Water Company for approval of the right to: (1) acquire substantially all of the East Dunkard Water Authority's assets, properties and rights related to its water system to Pennsylvania-American Water Company, and (2) begin to offer, render, furnish or supply water service to the public in Dunkard, and portions of Monongahela, Greene, Cumberland, Perry, and Whiteley Townships, Greene County, Pennsylvania

Docket No. A-2024-3049759

PAWC's Responses to TUS Set I

A-19. The Amended APA included minutes from EDWA's June 2, 2022, (June 2022 Minutes) board meeting as evidence of EDWA's current rates. PAWC's *pro forma* tariff supplement provided as the Application's Appendix B included service charges for 5/8-inch meters. However, EDWA's June 2, 2022, minutes do not show rates for 5/8-inch meters. Please provide responses to the following:

- a. Indicate if the EDWA system contains any 5/8-inch meters; and**
- b. Indicate if PAWC's proposed rates for 5/8-inch meters match EDWA's current rates.**

Response:

- a. The EDWA system does not currently contain 5/8-inch meters. As receiver of the system, PAWC has purchased 5/8-inch meters to begin replacing poor performing or stuck meters that are negatively affecting the Authority's revenue. Replacements have not occurred as of the date of this response.
- b. The EDWA currently does not list a rate specific for a 5/8-inch meter. As part of the pro forma tariff, PAWC reflected a rate equivalent to EDWA's 3/4-inch meter to be used for 5/8-inch meters that will be part of the system once acquired by PAWC. There will be no bill impact to customers who have a 3/4-inch meter replaced by a 5/8-inch meter.

**Responsible Witness: Daniel J. Hufton, P.E. – Manager, Engineering – Business Development
Pennsylvania-American Water Company
(subpart a)**

**Stacey Gress – Director, Rates and Regulatory
Pennsylvania-American Water Company
(subpart b)**

Date: July 25, 2024

Application of Pennsylvania-American Water Company for approval of the right to: (1) acquire substantially all of the East Dunkard Water Authority's assets, properties and rights related to its water system to Pennsylvania-American Water Company, and (2) begin to offer, render, furnish or supply water service to the public in Dunkard, and portions of Monongahela, Greene, Cumberland, Perry, and Whiteley Townships, Greene County, Pennsylvania

Docket No. A-2024-3049759

PAWC's Responses to TUS Set I

- A-20. The June 2022 Minutes indicated that EDWA has several customers with multiple dwellings on one meter. Please provide responses to the following:**
- a. Explain how PAWC intends to bill EDWA customers individually that are currently furnished water service through a meter that provides service to multiple customers; and**
 - b. Provide a plan to separately meter all EDWA customers along with a breakdown of the estimated costs and indicate the timeframe for the meter separation to be completed.**

Response: On July 17, 2024, PAWC met with EDWA employees to obtain additional information regarding the number and location of multiple dwellings with a single meter. EDWA employees identified five locations where it appeared one meter was serving multiple dwellings: two were small modular home communities and three were single family dwellings with an additional dwelling or modular home on the same parcel.

Based on EDWA employee discussions, these dwellings were discussed during the 6/3/22 Board meeting because they felt additional revenue could be obtained by individually metering each dwelling versus a single point meter (meter size base rate fee and PennVest charge).

After Close, PAWC will evaluate these locations for improvements and consistency with PAWC's tariff. PAWC will bill these customers based on their current meter location and size at rates reflected in the pro forma application tariff supplement, Appendix B.

Responsible Witness: Daniel J. Hufton, P.E. – Manager, Engineering – Business Development
Pennsylvania-American Water Company

Date: July 25, 2024

Application of Pennsylvania-American Water Company for approval of the right to: (1) acquire substantially all of the East Dunkard Water Authority's assets, properties and rights related to its water system to Pennsylvania-American Water Company, and (2) begin to offer, render, furnish or supply water service to the public in Dunkard, and portions of Monongahela, Greene, Cumberland, Perry, and Whiteley Townships, Greene County, Pennsylvania

Docket No. A-2024-3049759

PAWC's Responses to TUS Set I

A-21. The Application's Appendix M indicated that PAWC estimated an annual operating loss of \$167,000 for the requested territory. Please provide a detailed description of how PAWC will subsidize the estimated operating losses to provide adequate water service.

Response: PAWC is financially fit to own and operate the East Dunkard water system and as owner of the system, will finance its operations similar to how PAWC finances its other operations. The estimated operating loss of \$167,000 will reduce PAWC's operating income. In 2023, PAWC had net income of approximately \$300 million.

Responsible Witness: Stacey Gress, Director – Rates and Regulatory
Pennsylvania-American Water Company

Date: July 25, 2024

Application of Pennsylvania-American Water Company for approval of the right to: (1) acquire substantially all of the East Dunkard Water Authority's assets, properties and rights related to its water system to Pennsylvania-American Water Company, and (2) begin to offer, render, furnish or supply water service to the public in Dunkard, and portions of Monongahela, Greene, Cumberland, Perry, and Whiteley Townships, Greene County, Pennsylvania

Docket No. A-2024-3049759

PAWC's Responses to TUS Set I

A-22. The Application's Appendix N included a copy of an email from DEP to EDWA dated October 6, 2020 (DEP 2020 Email). In DEP 2020 Email, DEP requested that EDWA submit a Corrective Action Plan within the next 30 days. Please provide a copy of the Corrective Action Plan that EDWA submitted to DEP along with any associated DEP correspondence.

Response: A copy of the Corrective Action Plan submitted by EDWA to DEP in November 2020 is included in A-22-1_Attachment. Associated correspondence between the Company (acting as Receiver for EDWA) and DEP on the Corrective Action Plan is included in A-22-2_Attachment.

Responsible Witness: Daniel J. Hufton – Manager, Engineering – Business Development
Pennsylvania-American Water Company

Date: July 25, 2024

EAST DUNKARD
WATER AUTHORITY
CORRECTIVE ACTION PLAN

November 2020

East Dunkard Water Authority
2790 South Eighty Eight Road
Dilliner, PA 15327



harshman
CE GROUP, LLC

100 Courson Hill Road
Washington, PA 15301
www.HarshmanLLC.com
T: 724-503-4125

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Appendix G	Public Announcement of Availability of Water Testing
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Appendix I	Line ID Marker Quotes
Appendix J	Ductile Iron Pipe Details and Replacement Proposal



1. EXECUTIVE SUMMARY

On October 6th, 2020, East Dunkard Water Authority (the Authority) received a request from the Pennsylvania Department of Environmental Protection (the Department) to prepare and submit a Corrective Action Plan (CAP) as a result of multiple customer complaints of water quality problems and test result levels that exceeded the Secondary Maximum Contaminant Limits (MCL) for Manganese (Appendix A). While to this date the Authority has not had any samples tested which exceed any Health Advisory Levels (HAL), it is an utmost priority of the Authority and the Department to ensure that water supplied to East Dunkard customers is and continues to be safe and of high quality. As such, the Authority and the Authority's Engineers, Harshman CE Group (HCEG), have prepared the following CAP to rigorously monitor for any potential problems, ensure that the proper required responses to any problems are followed, and implement measures to improve and ensure the quality of the water the Authority provides.

The measures proposed by the Authority include:

- aggressive daily monitoring at the treatment plant for iron and manganese in the raw, settled, and finished water to confirm that the problem is not the current treatment chain
- reactive testing in the distribution system for iron and manganese whenever there is a break, hydrant use, or other shock to the system that disturbs existing sediment deposits in the lines
- continuing reactive testing of resident's water at their residence when they notify the Authority or HCEG of an ongoing water quality issue
- implementing a proactive flushing plan to fully flush any existing sediments in the lines, which involves
 - o comprehensively identifying the areas that are currently difficult or impossible to flush with flow sufficient to scour sediment
 - o installing additional control infrastructure and booster pumps as necessary to achieve scouring flow
 - o executing the final developed flushing program while simultaneously inspecting and cleaning the water storage tanks
- installing line identification markers in the field to reduce the chance of impacts from excavation
- installing approximately 2,000 linear feet of 10" plastic main line from the water plant to the Griffin Tank parallel to the existing ductile iron pipe, fully transitioning the system to plastic pipe.

The following plan outlines these proposals in greater detail.



2. CORRECTIVE ACTION PLANS

2.1 Acknowledgements

2.1.1 The Authority acknowledges the Secondary Maximum Contaminant Levels (MCL) for iron and manganese are 0.3 mg/L and 0.05 mg/L, respectively. Per the Department's request, any time secondary MCLs are exceeded, the Authority will notify the Department within one-hour of receiving sample results. In Pennsylvania, Secondary MCLs are enforceable regulatory levels and exceeding the levels is considered a violation and would require notification of DEP and be reported in the annual Consumer Confidence Report with the sample results. A complete list of Primary and Secondary MCLs is included in Appendix B.

Public Notification is not required unless the results also exceed a Health Advisory Level (HAL). In 2004, The United States Environmental Protection Agency (EPA) published a Drinking Water Health Advisory for Manganese (Appendix C). For manganese, the 10-day HAL for infants is 0.3 mg/L. If any manganese samples exceed that limit, the Authority will be required to issue a Tier 1 Do Not Consume Notice to their customers and notify the Department within 1 hour.

2.1.2 The Authority acknowledges that line breaks are typically caused by landslides, contractor errors, or issues not causally related to overall pipe condition. Whenever water customers lose water because of a break, the Authority will notify the Department within 1-hour. The Authority should also ensure that the Departments *Policy for Determining When Loss of Positive Pressure Situations in the Distribution System Require One-Hour Reporting to the Department and issuing a Tier 1 Public Notification*. The Policy and the appropriate Tier 1 Public Notification is included in Appendix D.

2.2 Monitoring and Testing

The goal of the Authority is to be as accommodating to residents' concerns as possible and ensuring the adequate supply of safe drinking water. As part of the proactive residential water testing that the Authority began in November 2019, the finished water at the water treatment plant was tested on 12/9/2019 and 8/7/2020. On both dates the Iron and Manganese levels of the finished water were either less than the method of detection level (MDL) or the value was between the method detection and practical quantitation limits. A summary of the Iron and Manganese results are shown in Table 1 and the complete results along with their chain of custody documentation are included in Appendix E)



Table 1: Summary of water testing results collected from the Water Treatment Plant finished water by Harshman CE Group and analyzed by H&H Water Controls.

Tests	12/09/2019	08/07/2020	Secondary MCL
Iron (Fe) (mg/L)	MD < 0.03	P 0.05	0.3 mg/L
Manganese (Mn) mg/L	P 0.03	MD <0.01	0.05 mg/L
MD – Indicates less than method detection limit.			
P – Estimated value between method detection and practical quantitation limit.			

On October 21, 2020, the Authority purchased equipment to be able to do benchtop testing for Iron (Fe) and Manganese (Mn). A Hach Iron (Ferrous) Color Disc Test Kit, Model IR-18C, 0.2-7 mg/L and a Hach Manganese Test Kit Model MN-5 were purchased for this purpose (Product Sheets are included in Appendix F)

2.2.1 Proposed testing at the Water Treatment Plant

Now that the authority has purchased the equipment to be able to conduct benchtop tests for Iron and Manganese more cost effectively than laboratory testing, the Authority will test the raw, settled, and finished water daily for at least the first 30 days. After that initial period, we will determine if daily tests are warranted or weekly or monthly testing. This data will be used by HCEG and plant equipment suppliers, Tonka Waters, to validate previous testing and the effectiveness of the current treatment chain for managing the levels of Manganese present in the raw water. If modifications to the treatment chain were deemed necessary, those options would be discussed and pursued at that time.

While the Authority staff is conducting daily iron and manganese testing of the raw, settled, and finished water:

- If, at any time, the bench top samples are greater than 50% of the MCL, the authority will also collect a sample to be verified by H&H Water Controls lab.
- If any MCLs are exceeded, the Authority will notify DEP within 1 hour.
- If the Health Advisory Level (HAL) of 0.3 mg/L is exceeded, the Authority will notify DEP within 1 hour and issue a Tier 1 Do Not Consume Notice.

A data log sheet with the above limits and appropriate contact information is included in Appendix F.



2.2.2 Proposed testing during shock events including breaks, leaks, hydrant use.

When the Authority determines a break, leak, or hydrant use has taken place. The Authority will collect samples as soon as possible upon arrival to the location. The sample should be collected and tested prior to any reactive flushing of the effected lines. Additional samples can be taken during or after flushing, but the first sample should always be tested prior to sampling to determine if any of the bulleted limits in section 3.2.1 have been exceeded and if any further actions (lab verification, DEP notification, and/or Tier 1 Notices) are required.

The Authority should also ensure that the Departments *Policy for Determining When Loss of Positive Pressure Situations in the Distribution System Require One-Hour Reporting to the Department and issuing a Tier 1 Public Notification*. If customers loose water because of a break, the Authority should notify the Department within 1-hour. The Policy and the appropriate Tier 1 Public Notification is included in Appendix D.

2.2.3 Proposed increased residential testing from complaints.

HCEG was authorized by the Authority in November 2019 to test the water of any resident who requested testing. This information was published on the Authority's website www.eastdunkardwater.com under a link on the main page titled *Engineering Company Info on Water Quality*. The announcement outlines the process for issuing complaints and having their water tested. The full body of the public announcement is included in this report in Appendix G. In addition to this procedure, the residents can continue using the traditional option of contacting the plant directly with complaints or issues; if testing was or is requested that information was and is forwarded to HCEG. HCEG has a standardized complaint form that is completed by HCEG staff that receives the call. That complaint form is given to a technician trained to collect the samples who then follows up with the resident and, if authorized by the resident, collects samples from the residence as soon as possible.

At this time, the information regarding the complaint and testing procedure will be moved to a more easily noticeable location on the home page of the Authority website. In addition, the service has been perceived by the residents as only available during business hours. To address this concern, we will amend the process to include information clarifying after-hours testing/complaint options. Also, up to this point, all residential testing has been collected and delivered to the laboratory for testing. As a cost savings measure, the Authority will obtain set of iron and manganese testing kits for use by HCEG when



complaints are received. With that equipment, HCEG staff can benchtop test for iron and manganese immediately at the residence to determine if any of the bulleted limits in section 3.2.1 have been exceeded and if any further actions (lab verification, DEP notification, and/or Tier 1 Notices) are required.

The goal of the Authority is to be as accommodating to residents' concerns as possible and ensuring the adequate supply of safe drinking water.

2.3 Proactive Line Flushing Program

It is known that there are existing sediments in the distribution system that are currently impossible to completely flush from the system for multiple reasons. The system is largely comprised of dead-end lines of varying line diameters that traverse steeply undulating terrain creating many low points in the lines. Additionally, many of the dead-end lines run up a valley terminate at houses located much higher in the valley than where that line segment began. Often the ends of these lines have insufficient pressure to achieve sediment scouring velocities.

All factors considered, achieving a completely flushable system involves: further identification of areas that are currently unflushable with sufficient flow to scour sediment; installation of additional infrastructure (possibly including pumps, gate valves, blow off valves, and or hydrants) where needed, and also inspecting and cleaning the tanks to ensure that build up sediments within the storage tanks are not propagating out into the distribution system. Those three parts are each discussed further in the following sections.

2.3.1 Pressure/Flow Modeling

A practical and comprehensive list of problematic areas and necessary upgrades will necessarily be developed as the first step achieving a fully flushable system. This can be accomplished through computerized modeling of the system that simulates field conditions and could also possibly be done with pressure/flow gauges in the field. The field testing may require additional infrastructure be installed on the lines to enable attaching the necessary gauges.

2.3.2 Installation of additional control infrastructure

Once the list of problem areas and necessary upgrades is developed as discussed in Section 3.4.1, that infrastructure will be installed on the lines.



2.3.3 Tank Cleaning

Tank inspection and cleaning (as necessary) is part of the final implementation phase of the project. Lines would be systematically flushed beginning at the treatment plant and working out through the system. The tanks will be cleaned simultaneously as the lines are being flushed where possible. As the lines leading to the tanks are flushed, the tanks will be cleaned, and the flushing plan will proceed onward from the lines leaving the tanks.

In November 2019, the Authority received two quotes inspection and cleaning of the primary storage tank, the Griffin Tank (Appendix H). The quotes are estimates because the price of cleaning is unknown until inspection can take place, and the most cost-effective option is to have a single mobilization that involves both inspection and cleaning. Cleaning the tanks will be contracted during the proactive flushing process.

2.4 Line Marking Program

One final proposal that has been discussed is the purchasing and installation of line markers. Currently the only physical traces of the lines visible on the surface of the ground are valve covers and hydrants. While the Authority responds to PA One Calls when they come in, accidental line strikes have still occurred in the past. The Authority will purchase and install line markers beginning in areas with the highest potential for conflicts from excavation: where lines cross roadways, where lines run parallel to roads, and where lines are adjacent to other underground utilities. In addition to being an added layer of prevention of accidental impacts from excavation, the markers will serve as physical field identification of line locations that would assist the future generation of staff with operation and maintenance of the line. A quote received for line markers has been included in Appendix I.

2.5 Line Replacement

The only remaining non-plastic line in the distribution system is the main trunk line from the plant to the Griffin Tank. Approximately 1900-2000 linear feet of 10" ductile iron pipe begins just outside the water treatment plant, crosses under State Route Eighty Eight, under a railroad, and traverses up several hundred feet of steep embankment where it ties into newer plastic line. This portion of line was not replaced as part of previous grants due to the high cost of replacement due to the previously mentioned crossings and difficult terrain. It is believed that the lining of the pipe was damaged during at the connection point in 2012 when plant upgrades were being completed. This has been considered over the years as a potential source of iron into the system when the Authority began receiving brown/dirty water complaints. Laying a new parallel plastic line has been proposed as a solution to eliminate a potential source of iron to the water supply, create a second connection between the



plant and primary water tank, and allow for inspection of the iron line. Extensive details pertaining to the line replacement proposal have been included in Appendix J.



3. POTENTIAL FUNDING SOURCES

In November 2019, the Authority met with Representative Pam Snyder's Office to discuss concerns and complaints received from constituents and identify possible State funding opportunities. Two opportunities were discussed at that time, the PA Small Water & Sewer Grant, and the PA H2O Grant. The Authority was unable to submit a competitive application in 2019 but will pursue those opportunities if they become available again.

In January of 2020 East Dunkard met with the Greene County Board of Commissioners and the County Planning Department to discuss funding possibilities at the County level. The Authority has been continuously working with the County Planning Department since that time and is pursuing a Competitive Grant Submission in February of 2021.



Appendix A DEP Request for Corrective Action Plan



sc@harshmanllc.com

From: Thomas, John <johnt@pa.gov>
Sent: Tuesday, October 6, 2020 9:25 AM
To: sc@harshmanllc.com; eastdunkard@gmail.com
Cc: Diehl, Renee (DEP); Miller, Patricia; Kaufman, Andrew
Subject: East Dunkard - Call Summary and Corrective Action Plan

Below is a brief summary of our conversation on October 5 and what the Department is requesting from the Authority at this time:

- The secondary MCLs for iron and manganese are 0.3 mg/L and 0.05 mg/L respectively. Any time these levels are exceeded in a sample the Department should be notified within one-hour of receiving sample results. Note that Public Notification is not required for these unless a Health Advisory Level (HAL) is also exceeded. Since secondary standards are enforceable in PA, these would be considered violations and would need to be reported as such in your CCR along with the sample results.
 - The manganese 10-day HAL for infants is 0.3 mg/L. If any manganese sample exceeds that limit, the Authority would be required to issue a Tier 1 Do Not Consume Notice to their customers in addition to the one-hour notification to the Department.
- The Department advises that the Authority sample for iron and manganese (at minimum) on a routine basis at the entry point and whenever dirty water complaints are received. These can be benchtop samples as opposed to lab samples provided that any elevated levels (>1/2 the MCLs) be followed-up with a confirmation lab sample. At this time, the Authority does not have equipment for benchtop sampling. Note that sampling for complaints should not follow flushing to adequately provide accurate information (not to restrict the potential of additional sampling following the flush).
- The treatment manufacturer was consulted regarding iron and manganese treatment, and the result of that investigation indicated that water leaving the plant was not a concern.
- Dirty water complaints reportedly typically follow some form of shock to the system such as a fire event or line break. Many occur in valleys where precipitates settle most readily.
- Line breaks are typically caused by landslides, contractor errors, or other issues not directly related to the overall pipe condition. Whenever customers lose water service as a result, the Department should be notified within 1-hour. The Authority should also ensure that they are following the Department's [Policy for Determining When Loss of Positive Pressure Situations in the Distribution System Require One-Hour Reporting to the Department and Issuing Tier 1 Public Notification](#).
- The Authority is currently unable to conduct a full-system, unidirectional flush due to hydraulic and topographic limitations. Engineers are working towards a flow-model of the system to determine how these issues can be resolved. Currently the system is flushed reactively in response to issues instead of proactively.
- The only noted non-plastic line in the distribution system is at the Rt 88 & railroad crossing near the plant, but the Authority is considering running a parallel line to enable this to be taken offline for investigation and redundancy.
- The Authority is also working on plans to have the tanks inspected and cleaned as necessary.

To address the dirty water and MCL exceedance concerns, the Department requests a Corrective Action Plan be submitted within the next 30-days. This plan should include a summary of the treatment plant investigation and any actions the Authority is taking or is planning to take to address this issue (flushing, line replacement, tank cleaning, and any additional activities).

Should you have any questions or concerns, please contact me as listed below.

JT

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Appendix B Primary and Secondary Maximum Contaminant Levels



Maximum Contaminant Levels, Maximum Residual Disinfectant Levels, and Treatment Technique Requirements

The Bureau of Safe Drinking Water has created the following fact sheet to aid interested parties in knowing the specific limits for all currently regulated contaminants as well as the treatment techniques that are defined in Chapter 109; Pennsylvania Safe Drinking Water Regulations. The contaminants are organized by contaminant groups, followed by the Treatment Technique requirements organized by source type and/or section they are contained in the regulation.

Title 25, Pa. Code, Chapter 109, Safe Drinking Water Regulations, defines Maximum Contaminant Levels (MCL), Maximum Residual Disinfectant Levels (MRDL), and Treatment Techniques (TT) as:

Maximum Contaminant Level (MCL): the maximum permissible level of a contaminant in water which is delivered to a user of a public water system and includes the primary and secondary MCLs established under the Federal Safe Drinking Water Act, and MCLs adopted under the act. For MCLs incorporated into this chapter by reference, the term refers to the numerical value and the means of determining compliance with that value and does not refer to the U.S. Environmental Protection Agency (EPA) applications to specific types of public water systems or sources.

Maximum Residual Disinfectant Level (MRDL): the maximum permissible level of a disinfectant added for water treatment that may not be exceeded at the consumer's tap without an unacceptable possibility of adverse health effects. The consumer's tap means the entry point for bottled water and vended water systems, retail water facilities, and bulk water hauling systems.

Treatment Technique (TT): a requirement which specifies a specific treatment method known to cause a reduction in the level of a contaminant which cannot practically be regulated by establishing an MCL. The term includes treatment technique requirements established under the federal act, and treatment technique requirements adopted under the act.

The following units of measurements are used in this document:

mrem/yr	millirems/year	
mg/L	milligrams per liter	Equivalent of parts per million
µg/L	micrograms per liter	Equivalent of parts per billion
pCi/L	picocuries per liter	
T.O.N.	threshold odor number	
NTU	nephelometric turbidity unit	

PRIMARY CONTAMINANT MCLs

Disinfection Byproducts:

Total Trihalomethanes (TTHMs) (Bromodichloromethane, Bromoform, Chlorodibromomethane, and Chloroform)	0.080	mg/L
Haloacetic Acids (HAA5) (Bromoacetic acid, Chloroacetic acid, Dibromoacetic acid, Dichloroacetic acid, Trichloroacetic acid)	0.060	mg/L

E. coli:

A system complies with the MCL for *E. coli* unless:

- The system has an *E. coli*-positive check sample following a total coliform-positive routine sample.
- The system has a total coliform-positive check sample following an *E. coli*-positive routine sample.
- The system fails to take all required check samples following an *E. coli*-positive routine sample.
- The system fails to test for *E. coli* when any check sample tests positive for total coliform.

Inorganic Chemicals (IOCs):

Antimony	0.006	mg/L	Cyanide (free CN)	0.2	mg/L
Arsenic	0.010	mg/L	Fluoride	2	mg/L
Asbestos (Fibers longer than 10µm)	7 million	fibers/L	Lead **	0.005	mg/L
Barium	2	mg/L	Mercury	0.002	mg/L
Beryllium	0.004	mg/L	Nitrate (as Nitrogen)	10	mg/L
Cadmium	0.005	mg/L	Nitrite (as Nitrogen)	1	mg/L
Chromium (Total)	0.1	mg/L	Selenium	0.05	mg/L
Copper **	1.0	mg/L	Thallium	0.002	mg/L

** The lead and copper primary MCLs are applicable only to bottled, vended, retail, and bulk water hauling systems.

Synthetic Organic Chemicals (SOCs):

Alachlor	0.002	mg/L	Ethylene Dibromide (EDB)	0.00005	mg/L
Altrazine	0.003	mg/L	Glyphosate	0.7	mg/L
Benzo(a)pyrene (PAHs)	0.0002	mg/L	Heptachlor	0.0004	mg/L
Carbofuran	0.04	mg/L	Heptachlor epoxide	0.0002	mg/L
Chlordane	0.002	mg/L	Hexachlorobenzene	0.001	mg/L
2,4-D	0.07	mg/L	Hexachlorocyclopentadiene	0.05	mg/L
Dalapon	0.2	mg/L	Lindane	0.0002	mg/L
1,2-Dibromo-3-chloropropane (DBCP)	0.0002	mg/L	Methoxychlor	0.04	mg/L
Di(2-ethylhexyl) adipate	0.4	mg/L	Oxamyl (Vydate)	0.2	mg/L
Di(2-ethylhexyl) (phthalate)	0.006	mg/L	PCBs (Polychlorinated biphenyls)	0.0005	mg/L
Dinoseb	0.007	mg/L	Pentachlorophenol	0.0001	mg/L
Dioxin (2,3,7,8-TCDD)	0.00000003	mg/L	Picloram	0.5	mg/L
Diquat	0.02	mg/L	Simazine	0.004	mg/L
Endothall	0.1	mg/L	Toxaphene	0.003	mg/L
Endrin	0.002	mg/L	2,4,5-TP (Silvex)	0.05	mg/L

Volatile Organic Chemicals (VOCs):

Benzene	0.005	mg/L	Ethylbenzene	0.7	mg/L
Carbon Tetrachloride	0.005	mg/L	Styrene	0.1	mg/L
Chlorobenzene	0.1	mg/L	Tetrachloroethylene	0.005	mg/L
o-Dichlorobenze	0.6	mg/L	Toluene	1	mg/L
p-Dichlorobenze	0.075	mg/L	1,2,4-Trichlorobenzene	0.07	mg/L
1,2-Dichloroethane	0.005	mg/L	1,1,1-Trichloroethane	0.2	mg/L
1,1-Dichloroethylene	0.007	mg/L	1,1,2-Trichloroethane	0.005	mg/L
cis-1,2-Dichloroethylene	0.07	mg/L	Trichloroethylene	0.005	mg/L
trans-1,2-Dichloroethylene	0.1	mg/L	Vinyl chloride	0.002	mg/L
Dichloromethane	0.005	mg/L	Xylenes (total)	10	mg/L
1,2-Dichloropropane	0.005	mg/L			

Radionuclides:

Beta Particles and photon emitters	4	millirems/year	Radium 226 and Radium 228 (combined)	5	pCi/L
Gross Alpha* (Alpha Particles)	15	pCi/L	Uranium	30	µg/L

* Gross Alpha MCL excludes Radon and Uranium particle activity.

SECONDARY CONTAMINANTS MCLs

Aluminum	0.2	mg/L	Odor	3	T.O.N.
Chloride	250	mg/L	pH*	6.5–8.5	
Color	15	color units	Silver	0.1	mg/L
Corrosivity	Non-corrosive		Sulfate	250	mg/L
Foaming Agents	0.5	mg/L	Total Dissolved Solids	500	mg/L
Iron	0.3	mg/L	Zinc	5	mg/L
Manganese	0.05	mg/L			

* The pH MCL represents a “reasonable goal for drinking water quality.”

MRDLs

Chlorine (as Cl ₂)	4.0	mg/L	Chlorine Dioxide (as ClO ₂)	0.8	mg/L
Chloramines (as Cl ₂)	4.0	mg/L			

TREATMENT TECHNIQUE REQUIREMENTS**Surface Water and Groundwater Under the Direct Influence of Surface Water (GUDI)**

All Filtration Types Shall Provide Continuous Filtration and Disinfection

Log Removal and Inactivation for *Giardia*, Viruses, and *Cryptosporidium*

- For *Giardia* lamblia cysts, provide at least 99.9% (3.0-log) removal and inactivation.
- For enteric viruses, provide at least 99.99% (4.0-log) removal and inactivation. Unless a facility is awarded removal credit for viruses through a permit, 4.0-log inactivation must be provided.
- For *Cryptosporidium* oocysts, **Bin 1** sources as determined by source water monitoring conducted in accordance with requirements of the Long-Term 2 Enhanced Surface Water Treatment Rule provide:
 - o At least 99% (2-log) removal of *Cryptosporidium* oocysts.
- For *Cryptosporidium* oocysts, **Bin 2** sources as determined by source water monitoring conducted in accordance with requirements of the Long-Term 2 Enhanced Surface Water Treatment Rule provide at least 99% (2-log) removal of *Cryptosporidium* oocysts and:
 - o 1-log additional treatment at facilities using conventional, slow sand, or diatomaceous earth filtration.
 - o 1.5-log additional treatment at facilities using direct filtration.
 - o Additional treatment as determined by the Department of Environmental Protection (DEP) for a total of 4.0-log removal and inactivation for alternative filtration technologies.
- For *Cryptosporidium* oocysts, **Bin 3** sources as determined by source water monitoring conducted in accordance with requirements of the Long-Term 2 Enhanced Surface Water Treatment Rule provide at least 99% (2-log) removal of *Cryptosporidium* oocysts and:
 - o 2-log additional treatment at facilities using conventional, slow sand, or diatomaceous earth filtration.
 - o 2.5-log additional treatment at facilities using direct filtration.
 - o Additional treatment as determined by DEP for a total of 5.0-log removal and inactivation for alternative filtration technologies.
- For *Cryptosporidium* oocysts, **Bin 4** sources as determined by source water monitoring conducted in accordance with requirements of the Long-Term 2 Enhanced Surface Water Treatment Rule provide at least 99% (2-log) removal of *Cryptosporidium* oocysts and:
 - o 2.5-log additional treatment at facilities using conventional, slow sand, or diatomaceous earth filtration.
 - o 3-log additional treatment at facilities using direct filtration.
 - o Additional treatment as determined by DEP for a total of 5.5-log removal and inactivation for alternative filtration technologies.

Bin Classification Reporting

Failure to report the Bin classification to DEP for approval within six months after completing the source water monitoring is a treatment technique violation.

Inactivation Requirements

The combined total effect of the disinfection processes used in a filtration plant shall achieve **at least 1.0-log (90%) and 3.0-log (99.9%) inactivation of Giardia cysts and viruses respectively** and the disinfectant residual concentration in the water delivered to the distribution system shall **not be less than .20 mg/l**. The log inactivation shall be calculated at least once per day during expected peak hourly flow.

- Failure to achieve the minimum log inactivation for more than four hours constitutes a breakdown in treatment and is a treatment technique violation.
- Failure to maintain the minimum entry point residual for more for more than four hours is a treatment technique violation.
- Log inactivation for Giardia shall be calculated whenever the residual disinfectant concentration at the entry point falls below the minimum specified value and continue to be calculated every four hours until the residual disinfectant concentration at the entry point is at or above the minimum value.

Turbidity Performance Standards

- For public water systems using surface water or GUDI sources and using any conventional or direct filtration, the **combined filter effluent turbidity shall not exceed 0.3 NTU in 95% of the monthly samples and 1 NTU at any time.**
- For public water systems using surface water or GUDI sources and using slow sand filtration or diatomaceous earth filtration, the **combined filter effluent turbidity shall not exceed 1.0 NTU in 95% of the monthly samples and 2.0 NTU at any time.**
- For public water systems using surface water or GUDI sources and using membrane filtration, the **combined filter effluent turbidity shall not exceed 0.15 NTU in 95% of the monthly samples and 1 NTU at any time.**

Recycling of Waste Stream

Public water systems that use surface water and GUDI sources and provide conventional filtration or direct filtration treatment and recycle spent filter backwash water, thickener supernatant, or liquids from dewatering processes shall return these recycled flows through the processes of the system's existing conventional or direct filtration system.

Enhanced Coagulation/Enhanced Softening

Public water systems that use surface water and GUDI sources and use conventional filtration treatment shall provide enhanced coagulation or enhanced softening to improve removal (optimize treatment) of disinfection byproduct precursors as measured by total organic carbon (TOC). A certain percentage of the TOC must be removed from the source water unless the system meets alternative compliance criteria. The required TOC removal percentage is based on the source water levels of the TOC and alkalinity. The alternative compliance criteria include source TOC levels, treated TOC levels, disinfection byproduct levels (TTHMs and HAA5s), specific ultraviolet (UV) light absorption levels, alkalinity levels and magnesium removal levels.

The TOC removal requirements are as follows:

Source Water TOC (mg/L)	Source Water Alkalinity (mg/L)		
	0 to 60	> 60 to 120	> 120
> 2.0 to 4.0	35.0%	25.0%	15.0%
> 4.0 to 8.0	45.0%	35.0%	25.0%
> 8.0	50.0%	40.0%	30.0%

The following alternative compliance criteria can be applied if the removal requirements are not met:

1. Source water TOC is less than 2.0 mg/L,
2. Treated water TOC is less than 2.0 mg/L,
3. The following three running annual averages (RAA) are met:
 - a. The source water TOC is 4.0 mg/L or less,
 - b. The source alkalinity is greater than 60 mg/L,
 - c. Distribution system TTHMs are 0.040 mg/L or less **and** HAA5s are 0.030 mg/L or less,
4. TTHM levels are 0.040 mg/L or less and HAA5 levels are 0.030 mg/L and the water system uses only chlorine for primary and residual disinfection,
5. Source water SUVA (Specific Ultraviolet Absorbance) values are 2.0 L/mg-m or less, as a RAA,
6. Finished water SUVA values are 2.0 L/mg-m or less, as a RAA,

Ground Water Sources

- Community water systems shall provide **continuous disinfection** of groundwater sources not under the direct influence of surface water.
 - o Maintain at each groundwater entry point a residual disinfectant concentration no less than 0.40 mg/L free chlorine or other minimum approved by DEP.
 - o Non-transient noncommunity and transient noncommunity systems that demonstrate 4.0-log disinfection shall maintain their DEP approved minimum residual at the entry point.

All Systems Specified in the Treatment Technique Description

Acrylamide and Epichlorohydrin

Public water systems using chemicals containing Acrylamide and/or Epichlorohydrin in the water treatment process shall certify that the following specified levels have not been exceeded.

- Acrylamide = 0.05% dosed at 1 mg/L (or equivalent)
- Epichlorohydrin = 0.01% dosed at 20 mg/L (or equivalent)

Distribution Disinfectant Residuals

A water system using a chemical disinfectant shall maintain a minimum residual disinfectant concentration throughout the distribution system of at least 0.2 mg/L (or another level approved by DEP for systems using an alternate oxidizing disinfectant treatment). Applies to all community water systems as well as non-transient noncommunity water systems that use a chemical disinfectant and transient noncommunity water systems that have installed 4-log treatment. Failure to do so results in a treatment technique violation.

- Free chlorine for systems using chlorine.
- Total chlorine for systems using chloramines.
- Both free and total chlorine for sampling locations in a mixing zone.
- Both free and total chlorine when a system using chloramines is conducting a free chlorine burn.
 - o For a system collecting less than 40 samples per month and uses only groundwater sources, the treatment technique is met when no more than one sample collected per month is less than the minimum level for two consecutive months.
 - o For a system that collects 40 or more samples per month or that uses surface water or GUDI sources, the treatment technique is met when no more than 5% of the samples collected per month are less than the minimum level for two consecutive months.
 - o A water supplier that fails to meet the minimum level at any sample location for two consecutive months shall conduct a distribution system investigation within 60 days.

Optimal Corrosion Control Treatment for Lead and Copper

Community and non-transient noncommunity water systems shall provide **optimal corrosion control treatment (OCCT)** which minimizes the lead and copper concentrations at the user's tap while ensuring the treatment does not cause the system to violate a Primary Maximum Contaminant Level (PMCL).

- A **small** ($\leq 3,300$ population served) **or medium** (3,301 to 50,000 population served) **water system** is deemed to have optimized corrosion control treatment if the system does not exceed either the action level of 0.015 mg/L for lead or the action level of 1.3 mg/L for copper during each of two consecutive 6-month monitoring periods.
- A **water system** is deemed to have optimized corrosion control if the system demonstrates to DEP that for two consecutive 6-month monitoring periods that the system does not exceed the action level of 0.015 mg/L for lead or the action level of 1.3 mg/L for copper **and** the difference between the 90th percentile tap water **lead** level and the highest source water **lead** concentration is less than 0.005 mg/L.
- A water system (large, medium or small) that installs new corrosion control facilities or modifies existing treatment facilities is deemed to have optimized corrosion control if the system operates the treatment facilities in compliance with water quality parameter performance requirements specified by DEP in a permit.

Revised Total Coliform Rule

Assessments

Failure of a public water system to conduct an assessment by the due date or complete a corrective action laid out in an assessment by the provided due date are considered treatment technique violations.

Seasonal Systems

A seasonal system that fails to complete the approved start-up procedure prior to serving water to the public incurs a treatment technique violation.

For more information, visit www.dep.pa.gov.

Appendix C EPA Drinking Water Health Advisory for Manganese





Drinking Water Health Advisory for Manganese

**Drinking Water Health Advisory
for Manganese**

Prepared by:

U.S. Environmental Protection Agency
Office of Water (4304T)
Health and Ecological Criteria Division
Washington, DC 20460

<http://www.epa.gov/safewater/>

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ABBREVIATIONS

ALS	Amyotrophic lateral sclerosis
CDC	Centers for Disease Control and Prevention
CJD	Creutzfeldt-Jakob Disease
g	gram
kg	kilogram
IOM	Institute of Medicine
L	liter
m ³	cubic meters
mg	milligram
mL	milliliter
mM	millimolar
Mn	manganese
min	minute
mmol	millimole
MMT	methylcyclopentadienyl manganese tricarbonyl
MND	motor neuron disease
NTP	National Toxicology Program
OST	Office of Science and Technology
OW	Office of Water
ppm	parts per million
PWS	public water system
RfD	Reference Dose
SDWA	Safe Drinking Water Act
SMCL	secondary maximum contaminant level
UCM	unregulated contaminant monitoring
µg	microgram
µmol	micromole

FOREWORD

The Drinking Water Health Advisory Program, sponsored by the Health and Ecological Criteria Division of the Office of Science and Technology (OST), Office of Water (OW), provides information on the health and organoleptic (color, taste, odor, etc.) effects of contaminants in drinking water. This Drinking Water Health Advisory contains Health Advisories as well as aesthetic properties (e.g., taste, odor, color) of manganese in drinking water.

A Drinking Water Health Advisory is not an enforceable standard for action. This Health Advisory describes nonregulatory concentrations of the contaminant in water that are expected to be without adverse effects on both health and aesthetics. Health Advisories serve as technical guidance to assist Federal, State, and local officials responsible for protecting public health when emergency spills or contamination situations occur. They are not to be construed as legally enforceable Federal standards. They are subject to change as new information becomes available. This draft supersedes any previous draft advisories for this chemical.

This Document is based, in part, on the Health Effects Support Document for Manganese (U.S. EPA, 2003a), the ATSDR's final Toxicological Profile for Manganese (ATSDR, 2000), and the Institute of Medicine's Dietary Reference Intakes for Manganese (IOM, 2002). The sections on analytical method and treatment technology are based on the Contaminant Candidate List Preliminary Regulatory Determination Support Document for Manganese (U.S. EPA, 2001).

EXECUTIVE SUMMARY

The EPA Office of Water is issuing this health advisory to provide guidance to communities that may be exposed to drinking water contaminated with high manganese (Mn) concentrations. The advisory provides guidance on the concentrations below which potential health and organoleptic problems would unlikely occur. This Drinking Water Health Advisory does not mandate a standard for action; rather it provides practical guidelines for addressing Mn contamination problems. The advisory provides an analysis of the current health hazard information and information on the organoleptic (i.e., taste and odor) associated with Mn-contaminated water, because organoleptic problems will affect consumer acceptance of water resources.

Manganese is a naturally-occurring element that can be found ubiquitously in the air, soil, and water. Manganese is an essential nutrient for humans and animals. Adverse health effects can be caused by inadequate intake or over exposure. Manganese deficiency in humans is thought to be rare because manganese is present in many common foods.

The greatest exposure to manganese is usually from food. Adults consume between 0.7 and 10.9 mg/day in the diet, with even higher intakes being associated with vegetarian diets (Freeland-Graves et al., 1987; Greger, 1999; Schroeder et al., 1966).

Manganese intake from drinking water is normally substantially lower than intake from food. At the median drinking-water level of 10 :g/L determined in the National Inorganic and Radionuclide Survey (NIRS), the intake of manganese from drinking water would be 20 :g/day for an adult, assuming a daily water intake of 2 L. Exposure to manganese from air is generally several orders of magnitude less than that from the diet, typically around 0.04 ng/day on average (U.S. EPA, 1990), although this can vary substantially depending on proximity to a manganese source.

Although manganese is an essential nutrient at low doses, chronic exposure to high doses may be harmful. The health effects from over-exposure of manganese are dependent on the route of exposure, the chemical form, the age at exposure, and an individual's nutritional status. Regardless, the nervous system has been determined to be the primary target organ with neurological effects generally observed. Many of the reports of adverse effects from manganese exposures in humans are from inhalation exposures in occupational settings.

Although there are substantial data supporting the neurological effects of *inhaled* manganese in both humans and animals, there are few data for the association between *oral* exposure to manganese and toxic effects. For example, several epidemiological studies (Kondakis et al., 1989; He et al., 1994) associate adverse neurological effects with exposure to manganese from drinking water; however, due to a lack of qualitative and quantitative details of the exposure scenario, these studies cannot be used for quantitative assessment. On the other hand, rodents do not provide a good experimental model for manganese neurotoxicity. Therefore, the assessment in this document focuses more on what is believed to be a safe oral intake of manganese for the general human population. Finally, it is important to emphasize that

individual requirements for, as well as adverse reactions to, manganese may be highly variable. The lifetime health advisory derived from the reference dose is estimated to be an intake for the general population that is not associated with adverse health effects; this is not meant to imply that intakes above the reference dose are necessarily associated with toxicity. Some individuals may, in fact, consume a diet that contributes more than 10 mg Mn/day without any cause for concern.

There were no studies found that reported exposure to elevated inorganic manganese with cancer in humans. Cancer studies in animals have provided equivocal results. Therefore, there are little data to suggest that inorganic manganese is carcinogenic.

As an element, manganese cannot go through metabolic transformation, but it can exist in many oxidative states and can be converted from one oxidative state to another within the body. Manganese is almost entirely excreted in the feces, only a small proportion being eliminated in the urine (Davis and Greger, 1992). Fecal manganese is comprised of unabsorbed dietary manganese and manganese excreted in bile.

Groups possibly sensitive to manganese would be those who absorb greater amounts of manganese or those who excrete less. These would include the very young (who may absorb more and excrete less), the elderly, and those with liver disease (with impaired biliary excretion).

In order to enhance consumer acceptance of water resources, this advisory recommends reducing manganese concentrations to or below 0.050 mg/L, the EPA's Secondary Maximum Contaminant Level (SMCL) for Mn. The SMCL is based on staining and taste considerations. It is not a federally enforceable regulation, but is intended as a guideline for States. States may establish higher or lower levels depending on the local conditions, such as unavailability of alternate water sources or other compelling factors, provided that public health and welfare are not adversely affected. The lifetime health advisory value of 0.3 mg/L will protect against concerns of potential neurological effects. In addition, this document provides a One-day and 10-day HA of 1 mg/L for acute exposure. However, it is advised that for infants younger than 6 months, the lifetime HA of 0.3 mg/L be used even for an acute exposure of 10 days, because of the concerns for differences in manganese content in human milk and formula and the possibility of a higher absorption and lower excretion in young infants.

1.0 INTRODUCTION

Manganese is a naturally-occurring element that can be found ubiquitously in the air, soil, and water. Manganese is also an essential nutrient for humans and animals (Leach and Harris, 1997; U.S. EPA, 2003a). Adverse health effects can be caused by inadequate intake or over exposure (See a review by Keen et al., 1999 and Keen et al., 2000). The main exposure of humans to manganese is from ingestion of food. Manganese deficiency in humans appears to be rare because manganese is present in many common foods. Manganese is essential to the proper functioning of both humans and other animals as it is required by many cellular enzymes (e.g., manganese superoxide dismutase, pyruvate carboxylase) and can serve to activate many others (e.g., kinases, decarboxylases, transferases, hydrolases, etc.; Hurley et al., 1984; Wedler, 1994; WHO, 2002).

Although manganese is an essential nutrient at low doses, chronic exposure to high doses may be harmful. There are substantial data supporting the neurological effects of *inhaled* manganese in both humans and animals, however, there are little data for the association between *oral* exposure to manganese and toxic effects.

There is a need for EPA to issue a health advisory to provide guidance to communities on the concentrations for avoiding health and organoleptic problems. This Drinking Water Health Advisory does not mandate a standard for action; rather it provides practical guidelines for addressing Mn contamination problems. The advisory provides an analysis of the current health hazard and organoleptic (i.e., taste and odor) information associated with Mn-contaminated water, because organoleptic problems will affect consumer acceptance of water resources.

Uses

Manganese is used principally in the manufacture of iron and steel alloys, manganese compounds, and as an ingredient in various products (ATSDR, 2000; IPCS, 1999). Manganese dioxide and other manganese compounds are used in products such as batteries, glass, and fireworks. Potassium permanganate is used as an oxidant for cleaning, bleaching, and disinfection purposes (ATSDR, 2000; HSDB, 2001). Potassium and manganese greensands are used in some locations for potable water treatment (ATSDR, 2000). Methylcyclopentadienyl manganese tricarbonyl (MMT), an organic manganese compound, is used as an octane-enhancing agent in unleaded gasoline in Canada, the United States, Europe, Asia, and South America (Lynam et al., 1999). Other manganese compounds are used in fertilizers, varnish, fungicides, and as livestock feeding supplements (HSDB, 2001).

2.0 MANGANESE IN THE ENVIRONMENT

Manganese is one of the most abundant metals on the earth's surface, making up approximately 0.1% of the earth's crust. Manganese is not found naturally in its pure (elemental) form, but is a component of over 100 minerals (ATSDR, 2000).

2.1 Water

Manganese is naturally occurring in many surface and ground water sources and in soils that may erode into these waters. However, human activities are also responsible for much of the manganese contamination in water in some areas.

Ambient manganese concentrations in sea water have been reported to range from 0.4 to 10 :g/L (ATSDR, 2000), with an average of about 2 :g/L (Barceloux, 1999). Levels in freshwater typically range from 1 to 200 :g/L (Barceloux, 1999). ATSDR reported that a U.S. river water survey found dissolved manganese levels of less than 11 to more than 51 :g/L (ATSDR, 2000). The United States Geological Survey's National Ambient Water Quality Assessment (NAWQA) has gathered limited data since 1991 on representative study basins around the U.S. This report indicates a median manganese level of 16 :g/L in surface waters, with 99th percentile concentrations of 400 to 800 :g/L (Leahy and Thompson, 1994; USGS, 2001). Higher levels in aerobic waters are usually associated with industrial pollution.

Overall, the detection frequency of manganese in U.S. ground water is high (approximately 70% of sites assayed have measurable manganese levels) due to the ubiquity of manganese in soil and rock, but the levels detected in ground water are generally below levels of public health concern (U.S. EPA 2003a). Similarly, manganese is detected in about 97% of surface water sites (at levels far below those likely to cause health effects) and universally in sediments and aquatic biota tissues (at levels which suggest that it does not bioaccumulate; U.S. EPA 2003a).

Between 1984 and 1986, the National Inorganic and Radionuclide Survey (NIRS) collected data from 989 U.S. community public water systems (PWSs) served by ground water in 49 states and found that 68% of the ground water PWSs reported detectable levels of manganese, with a median concentration of 10 :g/L. Supplemental survey data from PWSs supplied by surface waters in five states reported occurrence ranges similar to those of ground water PWSs.

2.2 Soil

Manganese constitutes approximately 0.1% of the earth's crust, and is a naturally occurring component of nearly all soils (ATSDR, 2000). Natural levels of manganese range from less than 2 to 7,000 ppm, with a geometric mean concentration of 330 ppm (Shacklette and Boerngen, 1984). The estimated arithmetic mean concentration is 550 ppm. Accumulation of manganese occurs in the subsoil rather than on the soil surface (ATSDR, 2000). An estimated 60–90% of soil manganese is associated with the sand fraction (WHO, 1981, as cited in ATSDR, 2000).

No published reports quantify exposure to manganese associated with soil ingestion. Assuming a concentration range of < 2 to 7,000 mg/kg soil and average ingestion of 50 mg soil/day, the average manganese intake of a 70-kg adult would be <0.0014 to 5 :g/kg-day. The corresponding intake for a 10-kg child consuming 100 mg of soil/day would be <0.02 to 70 :g/kg-day (U.S. EPA, 2003a).

2.3 Air

Air levels of manganese compounds vary widely depending on the proximity of point sources such as ferroalloy production facilities, coke ovens, or power plants. Average ambient levels near industrial sources have been reported to range from 220 to 300 nanograms of manganese per cubic meter (ng Mn/m^3), while levels in urban and rural areas without point sources have been reported to range from 10 to 70 ng Mn/m^3 (Barceloux, 1999). Existing data indicate that little difference is found between ambient manganese levels in areas where MMT is used in the gasoline and areas where MMT is not used (Lynam et al., 1999). The U.S. EPA estimated 40 ng Mn/m^3 as an average annual background concentration in urban areas based on measurements in 102 U.S. cities (U.S. EPA, 1990).

2.4 Food

Manganese is found in a variety of foods including many nuts, grains, fruits, legumes, tea, leafy vegetables, infant formulas, and some meat and fish. Food is the most important source of manganese exposure in the general population (ATSDR, 2000; IOM, 2002; U.S. EPA, 2003a).

Heavy tea drinkers may have a higher manganese intake than the general population. An average cup of tea may contain 0.4 to 1.3 mg manganese (ATSDR, 2000). In addition to dietary sources, approximately 12% of the adult population of the U.S. consumed manganese supplements in 1986 (Moss et al., 1989). The median amount of manganese in these dietary supplements was determined to be 2.4 mg/day, similar to the amount of the element consumed in the diet (based on survey information from the Third National Health and Nutrition Estimation Survey; IOM, 2002).

Freeland-Graves et al. (1987) have suggested a daily intake range of 3.5 to 7 mg Mn/day for adults based on a review of human studies. After reviewing dietary surveys, Greger (1999) presented a range for average intakes from adult Western and vegetarian diets of 0.7 to 10.9 mg Mn/day.

Infant formulas contain 50 to 300 $\mu\text{g/L}$ manganese (Collipp et al., 1983), compared to human milk which contains approximately 3.5 to 15 $\mu\text{g/L}$ manganese (ATSDR, 2000; U.S. EPA, 1997). Assuming an intake of 742 millilitres (mL) of breast milk/day (U.S. EPA, 1996a), a breast-fed infant would have an estimated daily manganese intake of 2.6 to 11.1 $\mu\text{g/day}$. An infant consuming the same volume of infant formula would have an estimated daily manganese intake of 37.1 to 223 $\mu\text{g/day}$. Assuming an average weight of 6 kg for an infant of age 6 months, the weight-adjusted average daily intake would range from 0.4 to 1.85 $\mu\text{g/kg-day}$ for breast-fed infants. The corresponding weight-adjusted intake for a formula-fed infant would be 6.2 to 37.2 $\mu\text{g/kg-day}$. Given the high manganese content of milk-based formula, the underexposure of infants to manganese appears less probable than their overexposure (Davidsson et al., 1989a; Dörner et al., 1987; Keen et al., 1986). Once solid foods are introduced, however, the contribution of manganese intake from milk becomes less significant.

In addition to concentration, an important consideration for determining human exposure to manganese from food is bioavailability (Kies, 1994). Several factors can influence the degree to which manganese in foods is absorbed following ingestion. These include intake of dietary fiber, oxalic acids, tannins, and phytic acids, which tend to decrease manganese absorption (Gibson, 1994; U.S. EPA, 2003a), as well as possibly sex-specific iron status (low iron can result in increased manganese absorption; Finley, 1999 while high levels of iron can inhibit manganese uptake). In addition, the status of the GI tract (e.g., the presence of material in the GI tract - fed vs fasted) also affects bioavailability.

Manganese Intake

Adequate Intake (AI) values have been determined for manganese by the Food and Nutrition Board of the Institute of Medicine as follows: 3 : g/day for infants 0-6 months, 0.6 mg/day for infants 7-12 months, 1.2 mg/day for children 1-3 years, 1.5 mg/day for children 4-8 years, 1.9 mg/day for boys 9-13 years, 2.2 mg/day for boys 14-18 years, 1.6 mg/day for girls 9-18 years, 2.3 mg/day for men 19 years or older, 1.8 mg/day for women 19 years or older, 2 mg/day during pregnancy, and 2.6 mg/day during lactation (IOM, 2002).

Adequate Manganese Intakes for Men, Women and Children

Age Group	Males	Females
Infants, 0-6 months	3 : g/day	3 : g/day
Infants, 7-12 months	0.6 mg/day	0.6 mg/day
Children, 1-3 years	1.2 mg/day	1.2 mg/day
Children, 4-8 years	1.5 mg/day	1.5 mg/day
Boys, 9-13 years	1.9 mg/day	--
Boys, 14-18 years	2.2 mg/day	--
Girls, 9-18 years	--	1.6 mg/day
Adults, \$19 years	2.3 mg/day	1.8 mg/day
Women, pregnant (lactating)	--	2 mg/day (2.6 mg/day)

According to IOM, the AI for infants (newborn to 6 months) was set based on “an average manganese concentration of 0.0035 mg/L in human milk” and an average milk consumption of 0.78 L/day. As indicated previously, the manganese concentration in human milk varies. For example, ATSDR (2000) listed a manganese concentration in human milk ranging from 0.003 to 0.01 mg/L, and U.S. EPA (1997), from 0.007 to 0.015 mg/L. Assuming an intake of 0.78 liters milk per day, an infant (0 to 6 months) would ingest 0.003 to 0.012 mg Mn/day from human milk (using the minimum and maximum values in the two concentration ranges); the AI set by the IOM (i.e., 0.003 mg/day) is at the lower end of this range.

Tolerable Upper Intake

The IOM (2002) also set a tolerable upper intake level of 11 mg/day for adults, based on a recent review (Greger, 1999) which stated that the average manganese intake for adults eating typical Western and vegetarian diets in various surveys ranged from 0.7 to 10.9 mg Mn/day. Davis and Greger (1992) reported that women given daily supplements of 15 mg manganese (as an amino acid-chelated manganese supplement) for 90 days experienced no effects other than a significant increase in lymphocyte manganese-dependent superoxide dismutase, a “biomarker” that increases in direct relation to manganese exposure (Greger 1998, 1999). There are insufficient data to set tolerable upper intakes for infants or children.

2.5 Environmental Fate

Manganese compounds may be present in the atmosphere as suspended particulates resulting from industrial emissions, soil erosion, volcanic emissions, application of manganese-containing pesticides, and the burning of MMT-containing gasoline (IPCS, 1999). Early analysis of emissions suggested that manganese from combustion of MMT is emitted primarily as manganese tetroxide (Mn_3O_4 ; Ter Haar et al., 1975, as cited in ATSDR, 2000). However, more recent testing suggests that when very low levels of MMT are combusted (i.e., concentrations comparable to the currently allowed levels), manganese is emitted primarily as manganese phosphate and sulfate. The reported formal charge of the emitted manganese is +2.2, with a mass median aerodynamic diameter of 1 to 2 microns (Ethyl Corporation, 1997, as cited in Lynam et al., 1999). Uncombusted MMT rapidly decomposes to manganese oxide, carbon dioxide, and organic compounds in the atmosphere and has a half-life of only a few seconds in the presence of sunlight (Lynam et al., 1999; Zayed et al., 1999). Because particle size is small, atmospheric manganese distribution can be widespread. These particles will eventually settle out into surface waters or onto soils via the process of dry deposition. Little information is available on the chemical reactions of atmospheric manganese, but it is expected to react with sulfur and nitrogen dioxide. The half-life of manganese in air is only a few days (ATSDR, 2000).

The primary sources for surface and ground water releases are industrial facility effluent discharge, landfill and soil leaching, and underground injection. Manganese, in the form of potassium permanganate, may be used in drinking water treatment to oxidize and remove iron, manganese, and other contaminants (ANSI/NSF, 2000). Transport and partitioning of manganese in water is dependent on the solubility of the manganese form. In surface waters, manganese occurs in both dissolved and suspended forms, depending on such factors as pH, anions present, and oxidation-reduction potential (ATSDR, 2000). Often, manganese in water will settle into suspended sediments. Anaerobic groundwater often contains elevated levels of dissolved manganese. The divalent form (Mn^{2+}) predominates in most water at pH 4–7, but more highly oxidized forms may occur at higher pH values or result from microbial oxidation (ATSDR, 2000). It can bioaccumulate in lower organisms (e.g., phytoplankton, algae, mollusks, and some fish), but not in higher organisms, and biomagnification in food-chains is not expected to be significant (ATSDR, 2000). Little information is available on the biodegradation of manganese-containing compounds in water, but factors such as pH and temperature are important for microbial activities.

Approximately 91% of environmental manganese is released to soil. The main source of this release is land disposal of manganese-containing wastes. The ability of manganese compounds to adsorb to soils and sediments is contingent upon the cation exchange capacity and organic content of the soil or sediment. Adsorption can vary widely based on differences in these two factors. Oxidative microbial activity may increase the precipitation of manganese minerals and increase the dissolution of manganese in subsurface environments.

2.6 Summary

The greatest exposure to manganese is usually from food. Adults consume between 0.7 and 10.9 mg/day in the diet, with even higher intakes being associated with vegetarian diets (Freeland-Graves et al., 1987; Greger, 1999.; Schroeder et al., 1966) or the consumption of large amounts of tea.

Manganese intake from drinking water is normally substantially lower than intake from food. At the median drinking-water level of 10 :g/L determined in the National Inorganic and Radionuclide Survey (NIRS), the intake of manganese would be 20 :g/day for an adult, assuming a daily water intake of 2 L. Exposure to manganese from air is generally several orders of magnitude less than that from the diet, typically around 0.04 ng/day on average (U.S. EPA, 1990), although this can vary substantially depending on proximity to a manganese source.

3.0 CHEMICAL AND PHYSICAL PROPERTIES

Manganese can exist in multiple oxidative states; the most environmentally and biologically important manganese compounds are those that contain Mn^{2+} , Mn^{4+} , and Mn^{7+} (U.S. EPA, 1994). The physical and chemical properties of different manganese compounds vary substantially, as demonstrated in Table 1 on the next page.

ORGANOLEPTIC PROPERTIES

At concentrations exceeding 0.1 milligrams per litre (mg/L), the manganese ion imparts an undesirable taste to beverages and stains plumbing fixtures and laundry (Griffin, 1960). When manganese (II) compounds in solution undergo oxidation, manganese precipitates, resulting in encrustation problems. At concentrations as low as 0.02 mg/L, manganese can form coatings on water pipes that may later slough off as a black precipitate (Bean, 1974). The U. S. and a number of other countries have set secondary standards of 0.05 mg/L for manganese. This is an aesthetic level above which problems with discoloration may occur.

Table 1.
Chemical and Physical Properties of Manganese and Common Manganese Compounds

	Mn	MnCl ₂	Mn ₃ O ₄	MnO ₂	KMnO ₄
CAS No.	7439-96-5	2145-07-3	1317-35-7	479-93-7	7722-64-7
Valance	0	+2	+2 and +3	+4	+7
Molecular Weight	54.9	125.8	228.8	86.9	158
Synonyms	Elemental manganese	Manganese dichloride; Manganese chloride; Manganese (II) chloride	Manganese oxide; Manganese (II,III) oxide; Manganese tertoxide	Manganese dioxide; Black dioxide; Cement black; Manganese peroxide; Manganese (IV) oxide	Potassium permanganate; permanganic acid, potassium salt
Physical State (25°C)	Solid	Solid	Solid	Solid	Solid
Boiling Point (°C)	1962	1190	—	—	—
Melting Point (°C)	1244	650	1564	535 (loses oxygen)	240
Density (g/cm ³)	7.4	2.98	4.86	5.026	2.703
Vapor Pressure (20°C)	1.9	—	—	—	—
Water Solubility (g/100 mL)	Decomposes	723 (25°C)	insoluble	insoluble	63.8 (20°C)
Log Octanol/Water Partition – Coefficient (Log K _{ow})	—	—	—	—	—
Taste Threshold	—	—	—	—	—
Odor Threshold (air)	—	—	—	—	—
Conversion Factor	—	—	—	—	—

— No data available.

4.0 TOXICOKINETICS

The absorption, distribution, metabolism and excretion of manganese in the body are reviewed, discussed, and summarized in Greger (1999), Kies (1994), U.S. EPA (1984; 1993; 2003a), and ATSDR (2000). Age, chemical species, dose, route of exposure, and dietary conditions all affect manganese absorption and retention (Lönnerdal et al., 1987). Uptake of dietary manganese appears to be influenced by several dose-dependent processes: biliary excretion, intestinal absorption, and intestinal elimination.

4.1 Absorption

Manganese speciation and the route of exposure affects its absorption (Andersen et al., 1999; Tjälve et al., 1996). Thomson et al. (1971) and Gibbons et al. (1976) reported that the divalent form of manganese is absorbed most efficiently. However, as Bales et al. (1987) reported, the efficiency of absorption also varies for different manganese salts with manganese

chloride more efficiently absorbed than the sulfate or acetate salts. Recent studies show that significant differences exist in the amounts of manganese that are absorbed across different exposure routes, with inhaled manganese being absorbed more rapidly and to a greater extent than ingested manganese (Roels et al., 1997; Tjälve et al., 1996). Very little manganese is absorbed through the skin. Absorption of manganese via inhalation, intratracheal instillation, or intravenous infusion bypasses the control processes of the gastrointestinal tract. Absorption from inhalation exposure is mainly a function of particle size with smaller particles reaching the lower airways where they can be absorbed and larger particles deposited in the upper airways where they are subject to possible mucociliary transport to the throat followed by entrance into the gastrointestinal tract.

From animal experiments, it is known that inhaled manganese (even the insoluble MnO_2) is transported in a retrograde direction from the olfactory epithelium to the striatum of the brain (Gianutsos et al., 1997; Roels et al., 1997). During its uptake through the olfactory nerve endings (Bench et al., 2001; Brenneman et al., 2000; Tjälve et al., 1996; Vitarella et al., 2000) it may damage the astrocytes (Henriksson and Tjälve, 2000). After peroral uptake, manganese, like all other metals, is filtered from the blood by the choroid plexus (Ingersoll et al., 1995; Zheng et al., 1991). The retrograde transport of manganese through the olfactory epithelium directly into certain regions of the central nervous system or the brain could explain why the safe dose following inhalation exposure is much lower than after oral ingestion (Wang et al., 1989). The following sections discuss absorption of manganese following oral exposure only.

Absorption of manganese across the gastrointestinal tract is regulated by normal physiological processes to help maintain manganese homeostasis. Manganese absorbed in the divalent form from the gut via the portal blood is complexed with plasma proteins that are efficiently removed by the liver. A 7-week study in which 7 adult males ingested high-fiber diets containing 12.0 to 17.7 mg Mn/day (0.17 to 0.25 mg/kg-day) found that an average of $7.7\% \pm 6.3\%$ of the manganese was absorbed during weeks 5 to 7, with no measurable net retention of manganese (Schwartz et al., 1986). Similarly, an average absorption of $8.4\% \pm 4.7\%$ was observed in 7 adults ingesting infant formula containing manganese (Sandström et al., 1986).

Manganese retention may be greater for young animals and infants (Keen et al., 1986) due to the fact that the biliary system, the primary route of excretion, is not completely developed in human infants (Lönnerdal, 1994). Keen et al. (1986) demonstrated a strong effect of age on intestinal manganese uptake and retention. Sprague-Dawley rat pups were fasted overnight and then intubated with 0.5 mL of human milk containing 0.005 mg $^{54}\text{Mn}/\text{mL}$. Manganese retention was highest ($\geq 80\%$) in pups less than 15 days old. In older pups (16-19 days old), the average retention was 40%. Lönnerdal et al. (1987) showed that manganese uptake from brush border membranes was higher in 14-day-old rats than in 18-day-old rats. Although Rehnberg et al. (1985) found that younger animals had a slower distal intestinal transit time than older animals (potentially contributing to a higher proportional uptake), Bell et al. (1989) showed that the uptake rate was similar in pre- and post-weanling animals, suggesting that age-dependent differences in manganese retention were not due to immature intestinal transport mechanisms. Fechter (1999) determined that neonatal mice are unable to maintain manganese homeostasis until 17-18 days of age. When considered together, these data indicate that human infants, at

certain ages, may not have developed the capacity to completely excrete manganese following ingestion.

Davidsson et al. (1989b) studied whole-body retention of ^{54}Mn in adult humans after intake of radiolabeled infant formula. These authors observed reproducible retention figures at day 10, after repeated administrations of the labeled formula to six subjects. Absorption ranged from 0.8-16%, with a mean value of $5.9 \pm 4.8\%$. This range corresponds to a 20-fold difference between the highest and lowest values. Retention at day 10 ranged from 0.6-9.2%, with a mean value of $2.9 \pm 1.8\%$, when measured in 14 healthy individuals. These results suggest substantial variation in absorption between individuals.

The absorption of manganese is closely linked to iron absorption; iron-deficient diets lead to an increased absorption of both iron and manganese (Finley, 1999; Sandström et al., 1986; Thomson et al., 1971). Rehnberg et al. (1982) administered dietary Mn_3O_4 (450, 1,150, or 4,000 ppm Mn) to young rats. These authors amended the basal diets with varying levels of iron, and demonstrated that iron deficiency promoted the intestinal absorption of manganese. Conversely, manganese absorption was inhibited by large amounts of dietary iron. Absorption is also related inversely to the level of calcium in the diet (Lutz et al., 1993; McDermott and Kies, 1987; Kies, 1994; Schroeder et al., 1966). Johnson et al. (1991) studied the absorption of radiolabeled manganese from various plant foods in adult men and women and reported that the absorption values ranged from 1.4 to 5.5% and were significantly lower than the mean values of 7.8 to 10.2% from controls (MnCl_2 dissolved in water). Certain constituents of tea, such as tannins, can result in reduced manganese absorption (Freeland-Graves and Llanes, 1994). Other factors can also influence the degree to which manganese in foods is absorbed upon ingestion. These include intake of dietary fiber, oxalic acids, and phytic acids as well as contents in the gut, which tend to decrease manganese absorption (Gibson, 1994; U.S. EPA, 2003a).

4.2 Distribution

Manganese is present in all tissues of the body, the highest levels usually being found in the liver, kidney, pancreas, and adrenals (Sumino et al., 1975; Tipton and Cook, 1963). Intermediate concentrations occur in the brain, heart and lungs (ATSDR, 2000), with accumulations preferential in certain regions of the brain in infants and young animals (Kontur and Fechter, 1988; Zlotkin and Buchanan, 1986). The lowest concentrations of manganese are observed in bone and fat. Some data suggest that tissues rich in mitochondria (for example, liver, kidney, and pancreas) contain higher levels of manganese (Kato, 1963; Maynard and Cotzias, 1955).

After absorption into the blood system by routes other than the gastrointestinal tract, manganese is apparently oxidized, and the trivalent manganese binds to transferrin. Transferrin-bound trivalent manganese is not as readily removed by the liver, as are protein complexes with divalent manganese. Thus, manganese delivered by routes other than the gastrointestinal tract would be available for uptake into tissues for a longer period of time than the orally administered manganese, leading to quantitative differences in tissue uptake (Andersen et al., 1999).

Factors that may alter tissue distribution include co-exposure to other metals (Shukla and Chandra, 1987) and the chemical form (Gianutsos et al., 1985). Age may also be a factor. Animal studies have shown that manganese crosses the blood-brain barrier in neonates at a rate four times higher than that in adults (Mena, 1974).

4.3 Metabolism

As a metallic element, manganese does not undergo metabolic conversion to other products. However, manganese has the potential to exist in several oxidation states in biological systems. Circumstantial evidence from the study of manganese-containing enzymes and from electron spin trapping experiments suggests that manganese undergoes conversion from Mn(II) to Mn(III) within the body (ATSDR, 2000). The conversion from Mn(II) to Mn(III) appears to be catalyzed by the α -globulin protein ceruloplasmin (Andersen et al., 1999).

A small fraction of absorbed manganese is present as the free ion. However, manganese readily forms complexes with a variety of organic and inorganic ligands. The complexes formed include 1) low molecular weight complexes with bicarbonate, citrate or other ligands; 2) an exchangeable complex with albumin; and 3) tightly bound complexes with proteins such as transferrin and α_2 -macroglobulin. In addition, manganese can assume a structural role in metalloproteins such as mitochondrial superoxide dismutase, pyruvate decarboxylase, and liver arginase. Manganese also plays a catalytic or regulatory role in enzymatic reactions involving select hydrolases, dehydrogenases, kinases, decarboxylases and transferases.

4.4 Excretion

Manganese is almost entirely eliminated in the feces, with only a small proportion (0.1-2%) being excreted in the urine (Davis and Greger, 1992). Fecal manganese is comprised of unabsorbed dietary manganese plus manganese excreted in bile. In humans, elimination is biphasic, with half-lives of 13 and 37 days (Davidsson et al., 1989b; Sandström et al., 1986). Sweat, hair and the milk of lactating mothers also contribute to excretion (Roels et al., 1992).

5.0 HEALTH EFFECTS DATA

Manganese is an essential element for many living organisms, including humans. It is necessary for proper functioning of some enzymes (manganese superoxide dismutase) and for the activation of others (kinases, decarboxylases, etc.). Adverse health effects can be caused by inadequate intake or over exposure. Manganese deficiency in humans appears to be rare because manganese is present in many common foods. Animals experimentally maintained on manganese-deficient diets exhibit impaired growth, skeletal abnormalities, reproductive deficits, ataxia of the newborn, and defects in lipid and carbohydrate metabolism (Keen et al., 1999; Hurley and Keen, 1987; U.S. EPA, 1984).

The health effects from over-exposure of manganese are dependent on the route of exposure, the chemical form, the age at exposure, and an individual's nutritional status.

Irrespective of the exposure route, the nervous system has been determined to be the primary target with neurological effects generally observed.

5.1 Human Studies

Humans are exposed to inorganic manganese compounds in food and water, but there are few reports of adverse effects in humans from ingesting excess manganese. Most human studies reporting adverse effects are of inhalation exposure. There is conclusive evidence from occupational studies in humans that inhalation exposure to high levels of manganese compounds can lead to a disabling syndrome of neurological effects referred to as “manganism.” Although it is typical for symptoms to occur after several years of exposure, some individuals may begin to show signs after 1-3 months of exposure (Rodier, 1955).

5.1.1 Short-term Exposure Studies

Neurological

Kawamura et al. (1941) reported health effects resulting from the ingestion of manganese-contaminated well water for an estimated 2-3 months by 25 individuals. The source of contamination was identified as leachate from approximately 400 dry cell batteries buried near the drinking water well. The concentration of manganese in the well water was analyzed 7 weeks after the first case appeared and was determined at that time to be ~14 mg Mn/L (as Mn_3O_4). However, when re-analyzed 1 month later, the levels were decreased about half. Therefore, the actual exposure was probably to drinking water containing ~28 mg Mn/L or higher. Assuming a daily water intake of 2 L, with a minimum of 2 mg Mn from food, a dose of at least 58 mg Mn/day is estimated. This exposure level is quite uncertain and it is estimated that it is around 25-30 times the level considered to be safe and adequate by the Food and Nutrition Board of the Institute of Medicine (IOM, 2002).

Health effects reported by Kawamura et al. (1941) included lethargy, increased muscle tonus, tremor and mental disturbances. Out of 25 people examined, 15 had symptoms. Five cases were considered severe, 2 cases were categorized as moderate, and 8 cases were described as mild. The most severe symptoms were observed in the elderly. Younger people were less affected, and symptoms of intoxication were completely absent in young children (age 1 to 6 years). Three deaths occurred, including one from suicide. Upon autopsy, the concentration of manganese in the brain of one person was found to be 2 to 3 times higher than concentrations measured in two unexposed individuals (controls). Extreme macroscopic and microscopic changes were seen in the brain tissue, especially in the globus pallidus. Although there were also elevated levels of zinc in the well water, the authors concluded that the zinc appeared to have no relation to the observed symptoms or tissue pathology. This conclusion was largely based on the observation of morphological changes in the corpus striatum, which are characteristic of manganese poisoning, but are not a feature of zinc poisoning.

While toxicity in the Kawamura et al. (1941) study is attributed to manganese, several

aspects of the observed health effects are inconsistent with traits of manganism observed in humans following chronic inhalation exposure. Inconsistencies include the rapid onset of symptoms and rapid progression of the disease. Two adults who came to tend the members of one family developed symptoms within 2 to 3 weeks. The course of the disease was very rapid, progressing in one case from initial symptoms to death in 3 days. Some survivors recovered prior to significant decreases in the manganese concentration of the well water which resulted when the dry-cell batteries were removed from the site. This pattern contrasts with the longer latency period and irreversible damage caused by inhalation exposure to manganese (as observed in several occupational exposure studies; ATSDR, 2000). These observations may represent differences in the pharmacokinetics of ingested versus inhaled manganese, but there is little information to support this conclusion. Although the individuals in the Kawamura et al. (1941) study were clearly exposed to high levels of manganese, it is possible that additional factors contributed to the observed effects (ATSDR, 2000; U.S. EPA, 1993).

Symptoms resembling Parkinson's disease have also been noted in an individual who ingested 1.8 mg/kg-day potassium permanganate for 4 weeks (Bleich et al., 1999; Holzgraefe et al., 1986). The symptoms occurred 9 months after the exposure.

5.1.2 Long-term Exposure Studies

Neurological

The neurological effects of inhaled manganese have been well documented in humans chronically exposed to elevated levels in the workplace (ATSDR, 2000; Canavan et al., 1934; Cook et al., 1974; Roels et al., 1999). The syndrome known as “manganism” is caused by exposure to very high levels of manganese dusts or fumes and is characterized by a “Parkinson-like syndrome” including weakness, anorexia, muscle pain, apathy, slow speech, monotonous tone of voice, emotionless “mask-like” facial expression, and slow clumsy movement of the limbs. In general, these effects are irreversible. Some motor functions may already be affected following chronic exposure to levels of manganese $\leq 1 \text{ mg/m}^3$ (if the inhaled manganese is respirable), but individuals in these situations have not shown the overt, clinical symptoms of those exposed to much higher levels (Mergler et al., 1994; Roels et al., 1992).

By the oral route, manganese is often regarded as one of the least toxic elements, although there is some controversy as to whether the neurological effects observed with inhalation exposure also occur with oral exposure. Several case reports of oral exposure to high doses of manganese have described neurological impairment as an effect, but the quantitative and qualitative details of exposure necessary to establish direct causation are lacking. An individual who took large mineral supplements over several years displayed symptoms of manganism (Banta and Markesbery, 1977).

An epidemiological study was conducted in Greece to investigate the possible correlation between long-term (i.e., more than 10 years) manganese exposure from drinking water and neurological effects in elderly people (Kondakis et al., 1989). The levels of manganese in the drinking-water of 3 different geographical areas were 3.6-14.6 : g/L in the control area and 81-253 : g/L and 1800-2300 : g/L in the manganese-containing areas. The total population in

the three areas being studied range from 3200 to 4350 people. The study included only individuals over the age of fifty drawn from a random sample of 10% of all households. The number of subjects sampled were 62, 49, and 77 for control, low-, and high-exposed groups. The authors performed a neurological examination of the subjects (weakness/fatigue, gait disturbances, tremors, dystonia, etc.) and expressed the results as composite scores. They found no differences in the manganese content in the blood, but a statistically-significant difference in both the manganese content in the hair and composite neurological scores between the high-exposed area (concentrations 1800-2300 : g/L) and the control area, suggesting neurological impairment in the high exposed area. The investigators estimated a dietary intake of 5-6 mg/day (personal communication), but data were not provided. Because of the uncertainty in the amount of manganese in the diet, and possible exposure from other sources such as dust, and little information on nutritional status and other possible confounding variables, it is difficult to estimate the total exposure to manganese.

The incidence of motor neuron disease (MND) in a small Japanese town was positively correlated with a significantly increased manganese concentration in local rice and a low magnesium concentration in the drinking-water (Iwami et al., 1994). The study did not provide good estimates of overall exposure to manganese in either the control population or the population with MND; therefore, development of the disease could not be conclusively attributed to manganese exposure. The simultaneous exposure to manganese and the deficiency of other essential minerals was possibly the reason for the enhanced incidence of neurotoxicological symptoms found in this study in Japan and in another population in Guam (Florence and Stauber, 1989; Yoshida et al., 1988).

There was also some speculation on a link between mineral deficiency, enhanced oral manganese uptake and Mn-catalyzed denaturation of copper-free prion protein to the pathogenic prion protein (Brown et al., 2000), which might explain the enhanced occurrence of some prion diseases in certain world regions (Purdey, 2000).

Goldsmith et al. (1990) investigated a Parkinson's disease cluster within southern Israel in which the prevalence of the disease was increased among persons 50 to 59 years old, suggesting an early onset. Well water and soils in the region reportedly contained high levels of manganese, although no quantitative data were provided. In addition, the manganese-containing fungicide Maneb was commonly used in the area. Several factors limit the use of this study for evaluation of the human health effects of excess manganese exposure. Lack of environmental concentration data prevent reliable estimation of exposure rates. Potentially confounding factors include the high levels of aluminum, iron, and other metals in the soil and water, and the use of the herbicide paraquat in the area (ATSDR, 2000). Paraquat is structurally related to N-methyl-4-phenyl-1,2,3,6-tetrahydropyridine (MPTP), which causes irreversible symptoms of parkinsonism in humans.

Contrary to the above studies, another long-term drinking-water study in a rural northern area of Germany (Vieregge et al., 1995) found no neurological effects following ingestion of increased manganese. No significant differences in neurological tests were found in older people (41 subjects older than 40 years with a mean age of 57.5) consuming well water containing at least 0.3 mg/L of manganese (0.3 to 2.16 mg/L of manganese) for 10 to 40 years. The control

group (74 subjects, mean age 56.9 years) was exposed to water containing less than 0.05 mg/L of manganese. Subjects of both groups were randomly selected and matched with respect to age, sex, nutritional habits, and drug intake. However, like the Kondakis et al. (1989) study, this study lacks exposure data from other routes and sources, and the manganese concentration range in the water was very broad.

Two other studies involving ingestion exposure to manganese reported no increases in adverse health effects. In one area of Japan, a manganese concentration of 0.75 mg/L in the drinking-water supply had no apparent adverse effects on the health of consumers (Suzuki, 1970). No signs of toxicity were observed in patients given 30 mg of manganese citrate (9 mg of manganese) per day for many months (Schroeder et al., 1966).

One epidemiological study has been identified which attempts to link potential overexposure to ingested manganese with neurotoxicity in children. Adverse neurological effects (decreased performance in school and in neurobehavioral examinations of the WHO core test battery) were reported in 11- to 13-year-old children who were exposed to excess manganese through ingestion of contaminated water and consumption of food made of wheat fertilized with sewage water (He et al., 1994; Zhang et al., 1995). The exposed and control groups were both from farming communities and were matched for age, sex, grade, family income level, and parental education level. The average manganese concentration of the drinking-water was 0.241 mg/L for the exposed area compared to the control level of 0.04 mg/L. However, the total exposure data, including manganese exposure from food, water and air, exposure duration, as well as other confounding factors and the nutritional status of the children were not well-characterized.

A recently published case study (Woolf et al., 2002) reported increased manganese levels in the hair and blood of a 10-year-old child exposed to increased manganese in drinking water. The child had been ingesting drinking water supplied by a well for 5 years prior to a clinic visit for evaluation of over-exposure to manganese. In addition, the family lived in a house near a toxic waste dump. An evaluation of the well water performed four months prior to the child's health assessment indicated that manganese and iron levels in the water were both elevated, with concentrations of 1.21 (reference level, 0.05 mg/L) and 15.7 mg/L, respectively. The child's whole blood and serum manganese levels were 3.82 : g/100 mL (reference normal, <1.4 : g/100 mL) and 0.90 : g/100 mL (reference normal, <0.265 : g/100 mL), respectively. The child's hair manganese level was 3,091 ppb of washed, acid-digested hair (reference normal, <260 ppb hair). Although the child's 16-year-old brother did not exhibit elevated blood manganese, he did have increased manganese in his hair. The 10-year-old did not exhibit any clinical effects of manganese over-exposure (cogwheeling, abnormally high muscle tone, fixed facies, etc.) and had good balance with closed eyes, although he did have trouble coordinating rapid alternating motor movements (this deficiency is consistent with the test performance of occupational workers chronically exposed to airborne manganese). Magnetic resonance imaging (MRI) of the child's brain did not indicate any hyperintense signaling of the globus pallidus, basal ganglia, mid-brain or pons, which would indicate manganese deposition in these areas of the brain. Selective deposition of manganese in the globus pallidus and basal ganglia has been shown to occur in children and adults with chronic manganese overexposure (Devenyi et al., 1994; Hauser et al., 1996). The absence of the signaling argues against manganese toxicity. Results from a battery of neuropsychologic tests on the child indicated that global cognition was unimpaired.

However, the child had difficulties in both visual and verbal memory, which the study authors considered consistent with a deficit in free retrieval skills. The family was counseled to use bottled water for drinking and cooking; one month after the initial test, the child's whole blood manganese level was reduced to 1.71 : g/100 mL (Woolf et al., 2002). It is difficult to determine the total exposure from this study.

Results from studies of an Aboriginal population in Groote Eylandt have been cited as additional evidence for a relationship between elevated manganese exposure, violent behavior, and adverse health effects. The soil on this Australian island is exceptionally high in manganese (40,000 to 50,000 ppm), and the fruits and vegetables grown in the region are reported to contain elevated concentrations of the element. High alcohol intake, anemia, and a diet deficient in zinc and several vitamins (Florence and Stauber, 1989) may contribute to increased uptake and retention of manganese. The proportion of arrests in this native population is the highest in Australia, and high incidences of stillbirths and congenital malformations, as well as a high occurrence of Parkinson-like neurobehavioral syndrome, have been observed (Cawte and Florence, 1989; Kilburn, 1987). Clinical symptoms consistent with manganese intoxication are present in about 1% of the inhabitants. Quantitative data on oral intake have not been reported, but elevated concentrations of manganese have been determined in the blood and hair of the Aborigines (Stauber et al., 1987). However, Stauber et al. (1987) did not find a correlation between hair levels of manganese and the severity of neurological symptoms in individuals. A study of the neurologic status of the Aborigines in Groote Eylandt identified two general syndromes. One syndrome is characterized by muscle atrophy and weakness, while the other is characterized by ataxia and oculomotor disturbances (Kilburn, 1987). Although an association of adverse health effects with elevated manganese exposure is suggested by these observations, the small population of Groote Eylandt and the difficulty in defining an appropriate control population have prevented the identification of statistically-significant trends (U.S. EPA, 1993).

Several of the studies above utilized hair analysis as a method for estimating exposure to manganese. ATSDR (2000) has outlined several potential limitations to the use of hair analysis. The normal cycle of hair growth and loss restricts its usefulness to a period of a few months following exposure. External contamination of hair by dye, bleaching agents, or other materials may result in values which are not representative of absorbed doses. Further, the affinity of manganese for pigmented tissue may result in variations of manganese concentration with hair color.

Kihira et al. (1990) have associated manganese with amyotrophic lateral sclerosis (ALS). Spinal cord samples from ALS patients were found to have higher manganese concentrations in the lateral fasciculus and anterior horn than in the posterior horn. ALS patients also exhibited a positive correlation between manganese and calcium spinal cord content, while controls exhibited a negative correlation. It was suggested that an imbalance between manganese and calcium in ALS patients plays a role in functional disability and neuronal death. This study needs to be interpreted with caution, however, because it is not conclusive that the high manganese concentrations in these patients preceded the onset of the disease.

Creutzfeldt-Jakob Disease (CJD) clusters in central Slovakia have occurred near areas of

high manganese in conjunction with low copper (Purdey, 2000). The level of manganese in natural uncultivated pasture in CJD-endemic areas was 210 ppm dry weight in comparison to CJD-free areas where the level was 85 ppm dry weight. The levels of manganese in pine needles and some specific crops were also measured and were approximately 1.5-16 times greater in the CJD-endemic regions (Purdey, 2000). It was suggested that manganese replaces copper in CNS prion proteins (PrP) causing a protease-resistant, misfolded PrP. Brown et al. (2000) determined that manganese can replace copper in recombinant PrP and reported that the PrP appears less stable and quickly converts to a misfolded form. Although the manganese-loaded PrP initially had a similar structure and activity as copper-loaded PrP, aging of the manganese-loaded PrP caused it to become proteinase-resistant and lose function.

Reproductive and Developmental Studies

Male workers afflicted with clinically identifiable symptoms of manganism also have loss of libido and impotence from occupational exposure to manganese for 1-21 years (Emara et al., 1971; Mena et al., 1967; Rodier, 1955; Schuler et al., 1957). Impaired fertility, as measured by fewer children/married couple, has been observed in male workers exposed for 1-19 years to manganese dust at levels that did not produce obvious manganism (0.97 mg/m^3 ; Lauwerys et al., 1985).

Three groups of men occupationally exposed to manganese for 1 or more years (63 miners or ore processors, 38 electric welders in mechanical fields, and 110 electric welders in shipbuilding) were reported to have increased semen liquification time and decreased sperm count and viability (Wu et al., 1996). Matched controls consisted of 99 men who were employed in the same occupation, but were not exposed to manganese or other reproductive toxins. Manganese levels, as well as those of a few other metals, were increased in the semen of the exposed group. Although this study suggests that manganese exposure may cause sperm toxicity, a stepwise regression analysis of the other metals present indicated that the higher nickel concentrations were also associated with lesser semen volume and a greater percentage of deformed sperm. This prevents any conclusive link between manganese and reproductive function.

By contrast, no significant differences in reproductive outcome were found between exposed men and matched controls in a reproductive epidemiology study involving 314 men in a manganese plant (Jiang et al., 1996). The geometric mean airborne manganese concentration was 0.145 mg/m^3 as MnO_2 . The incidences of sexual dysfunction were evaluated through researchers' questions and judged by the occurrence of two positive responses to three potential conditions: impotence, abnormal ejaculation (early ejaculation or non-ejaculation), and lack of sexual desire.

No information was found regarding reproductive effects in women following manganese exposure.

Studies are limited regarding developmental toxicity in humans following oral exposures to manganese. Kilburn (1987) reported an increased incidence in birth defects and stillbirths in a

small population of indigenous peoples in Groote Eylandt, Australia. Although the area was rich in manganese deposits and ingestion of excess amounts of the metal was suspected, the study

suffered from a lack of exposure data, small sample sizes, and no suitable control group. Further, inhalation exposure to manganese could not be ruled out.

Cancer and Mutagenicity Studies

Mutagenicity

The genotoxic potential of high manganese exposure in humans is not known (IPCS, 1999). Elias et al. (1989) found an increase in the incidence of chromosomal aberration in metal active gas welding workers who had been welding for 10-24 years. Occupational exposure to nickel, as well as manganese, was reported. Since nickel is known to cause chromosomal aberration via inhalation, the results could not be attributed solely to the influence of manganese.

Carcinogenicity

No studies are available on the potential carcinogenicity of high exposure to manganese in humans (ATSDR, 2000).

Variation In Human Sensitivity

Individuals that have an impaired excretion and increased retention would be sensitive to manganese toxicity. Reasons for such susceptibility are genetic make-up, developmental stage, age, health and nutritional status. First, individuals with decreased excretion or impaired liver function can be at risk from exposure to excess manganese because the liver is the main organ for excreting manganese. This group may include the elderly who may have declining organ function, the very young who may have immature and developing organs, and those with liver disease. For example, Devenyi et al. (1994) reported observable neurological signs associated with manganese toxicity in individuals with chronic liver disease. Hauser et al. (1996) reported changes in brain MRI scans in liver failure patients which were identical to those observed in cases of manganese intoxication. Second, individuals with increased retention of manganese may be more sensitive to manganese toxicity including those whose nutritional status causes increased uptake of manganese. For example, the very young are considered a potential sensitive population due to the increased retention of manganese in animals (Keen et al., 1986; Kostial et al., 1978; Rehnberg et al., 1980) and humans (Zlotkin and Buchanan, 1986). This increased retention leads to increased manganese in the tissue, especially in the brain (Kontur and Fechter, 1985, 1988; Kostial et al., 1978; Kristensson et al., 1986; Miller et al., 1975; Rehnberg et al., 1981). This is a concern because the nervous system is the primary target organ. Although some data suggest that infants are potentially more susceptible to the toxic effects of manganese, evidence indicates that individual susceptibility varies greatly. The Kawamura et al. (1941) study suggested that young children (age 1 to 6 years) may be less sensitive to manganese toxicity than adults or older people. Current information is not sufficient to quantitatively assess the susceptibility of the young compared to adults.

Although studies are mixed, the majority have also suggested that the elderly (50 years of age or over) are more susceptible to manganese neurotoxicity than the general population (Kawamura et al., 1941; Rodier, 1955; Tanaka and Lieben, 1969). Loss of neuronal cells due to

aging and/or accumulated damage from other environmental neurotoxicants, as well as less effective homeostatic control, may contribute to this increased susceptibility (Silbergeld, 1982).

5.2 Animal Studies

5.2.1 Short-term Exposure Studies

Lethality

Acute lethality of manganese in animals appears to vary depending on the chemical species and whether exposure is via gavage or dietary ingestion (ATSDR, 2000). Single-dose oral LD₅₀ values in adult rats exposed by gavage ranged from 331 mg Mn/kg-day (as manganese chloride; Kostial et al., 1989) to 1,082 mg Mn/kg-day (as manganese acetate; Smyth et al., 1969), while a 14-day exposure of rats to 1,300 mg Mn/kg-day (as manganese sulfate) in feed resulted in no deaths (NTP, 1993).

Manganese compounds administered by parenteral routes generally result in mortality at lower doses. For example, Larsen and Grant (1997) administered a single intravenous dose of 150, 200, 300, or 400 :mol/kg in saline to male mice (5/group). These doses correspond to 8.2, 11, 16, and 22 mg Mn/kg, respectively. These study authors reported an LD₅₀ value of 300 :mol/kg (16 mg Mn/kg). LD₅₀ values for the intraperitoneal route ranged from 14 to 64 mg Mn/kg.

Age may be a factor in susceptibility to acute manganese toxicity. Kostial et al. (1978) found that MnCl₂ produced the greatest oral toxicity in the youngest and oldest groups of exposed rats. Roth and Adleman (1975) proposed that the increased susceptibility of older rats may result from a decrease in adaptive responsiveness, which is characteristic of the aging process. Increased susceptibility of younger rats may reflect high intestinal absorption and body retention of manganese.

General Toxicity

In a 14-day oral exposure study, NTP (1993) administered diets containing 0, 3, 130, 6,250, 12,500, 25,000, or 50,000 ppm manganese sulfate monohydrate to F344 rats (5/sex/dose). All rats survived the exposure period. Statistically-significant differences in manganese-treated rats included reduced body weight gain (57% decrease) and final body weight (13% decrease) in the high-dose males when compared to the control group. Decreased leukocyte and neutrophil counts and reduced liver weight were observed in high-dose males and females. The high-dose groups also exhibited diarrhea during the second week of the study. Manganese concentrations in the livers of animals receiving the 50,000 ppm diet were more than twice those of the controls. The NOAEL and LOAEL values based on decreased weight gain (males) and hematological changes were approximately 650 and 1,300 mg Mn/kg-day, respectively.

NTP (1993) also administered diets containing 0, 3, 130, 6,250, 12,500, 25,000, or 50,000 ppm manganese sulfate monohydrate to B6C3F₁ mice (5/sex/dose) for 14 days. However, study animals were poorly randomized at the beginning of the study, and no effects clearly attributable to manganese exposure were identified.

Exon and Koller (1975) reported that rats administered as little as 6 mg Mn/kg-day as Mn_3O_4 in feed for 28 days gained only 44% as much weight as control rats over the duration of the study. Since no histopathological changes were observed in the exposed animals, the authors suggested that the decrease in body weight gain might have been due to manganese interference in metabolism of calcium, phosphorous, and iron.

Hepatic

Shukla et al. (1978) administered a dose of 16 mg $\text{MnCl}_2 \cdot 4\text{H}_2\text{O}$ /kg (4.4 mg Mn/kg) in drinking water (dose calculated by investigators) to rats for 30 days and evaluated the effect on hepatic enzyme activity. Treated rats revealed significantly decreased succinic dehydrogenase, alcohol dehydrogenase, and α -amylase activity when compared with controls. In contrast, manganese exposure resulted in significantly increased activities of monoamine oxidase (MAO), adenosine triphosphatase, arginase, glutamate pyruvate transaminase (alanine aminotransferase or ALT), ribonuclease, glucose-6-phosphatase, and β -amylase activity in the livers of treated rats.

Hietanen et al. (1981) studied the effect of manganese on hepatic and extrahepatic enzyme activities. Male Wistar rats were exposed to 0.5% Mn (as MnCl_2) in the drinking water for 1, 4, or 6 weeks. Assuming an average body weight of 0.35 kg and average water consumption of 0.045 L/day (U.S. EPA, 1986a), this corresponds to an exposure of 0.7 mg Mn/kg-day. Changes in the activity of several enzymes, including aryl hydrocarbon hydroxylase, ethoxycoumarin γ -deethylase, and epoxide hydrolase, were observed at 1 week but not at 6 weeks. Enzyme activities were increased in the liver, and decreased in the intestines and kidney.

Neurological

The central nervous system is the chief target of manganese toxicity. Oral doses ranging from 1 to 150 mg per kg of body weight per day produced a number of neurological effects in rats and mice, mainly involving alterations in neurotransmitter and enzyme levels in the brain. These changes were sometimes accompanied by clinical signs, such as changes in coordination and activity level (ATSDR, 2000).

Deskin et al. (1980) studied neurological alteration induced by manganese chloride in neonatal CD rats. Rats were intubated with 1, 10 or 20 mg Mn/kg-day from birth to 24 days old. Manganese administration (10 and 20 mg/kg-day) resulted in a significant elevation of manganese in the hypothalamic area and corpus striatum, but neurochemical alterations (a decrease in dopamine concentration and turnover) were observed only in the hypothalamic area. The highest dose also resulted in an increase in monoamine oxidase activity in the hypothalamus of treated rats. A subsequent study by Deskin et al. (1981) using the same protocol (but doses of 10, 15 or 20 mg/kg-day) reported a significant elevation in serotonin levels in the hypothalamus, but not the striatum, following exposure to 20 mg/kg-day.

Kontur and Fechter (1988) intubated neonatal Long-Evans rats daily with 0, 25 or 50 mg/kg-day manganese chloride ($\text{MnCl}_2 \cdot 4\text{H}_2\text{O}$) for 14 or 21 days. The level of manganese in the brain was increased at both 14 and 21 days, but was greater at 14 days. However, monoamine and metabolite levels were not altered by manganese treatment in any brain region. The authors suggest that the different results from short-term studies reported by different laboratories may be because of species or strain differences, the dosing regimen or vehicle, the route of administration, or the time points chosen for testing.

Kimura et al. (1978) provided rats with diets supplemented with 564 ppm of manganese as MnCl_2 for 3 weeks. Assuming a food consumption factor of 5% (i.e., 5g diet per 100 g body weight per day), this corresponds to a daily dose of 28 mg Mn/kg-day. The study authors reported that brain serotonin levels were decreased in manganese-treated rats. Monoamine oxidase activity was unchanged, but l-amino-acid decarboxylase activity in the brain was decreased by manganese treatment. Histopathological analysis of the brain was not conducted. Blood serotonin levels were increased in treated rats, and this change was accompanied by decreased blood pressure.

5.2.2 Long-term Exposure Studies

General Toxicology

Chronic ingestion of 1-2 mg Mn/kg-day produced changes in appetite and reduction in hemoglobin synthesis in rabbits, pigs, and cattle (Hurley and Keen, 1987). Transient effects on biogenic amine levels and activities of dopamine β -hydroxylase and monoamine oxidase in rat brain have been noted with long-term exposures to manganese (Eriksson et al., 1987; Lai et al., 1984; Subhash and Padmashree, 1990). An increase in physical activity level and a transient increase in dopaminergic function were observed in rats given 40 mg Mn/kg-day for 65 weeks (Nachtman et al., 1986). Two-year oral exposures to extremely high doses (1800-2250 mg/kg-day as MnSO_4) in male and female mice resulted in hyperplasia, erosion, and inflammation of the forestomach; no effects were seen in rats (NTP, 1993).

Mitochondria-rich organs, such as the liver and pancreas, are hypothesized to be most affected by oral exposure to manganese because of the interaction of manganese with mitochondrial enzymes. Wassermann and Wassermann (1977) reported ultrastructural changes of the liver cells in rats exposed to 200 mg/L of manganese chloride in their drinking water for 10 weeks. Assuming water consumption of 0.05 L/day and an average body weight of 0.35 kg (U.S. EPA, 1986a), this level of exposure corresponds to an average daily dose of approximately 12 mg Mn/kg-day. Increased metabolic activity was inferred from an increased amount of rough endoplasmic reticulum, the occurrence of multiple rough endoplasmic cisternae and prominent Golgi apparatus, and large Golgi vesicles filled with osmiophilic particles in the biliary area of the liver cell. The authors attributed this apparent increase in metabolic activity to biochemical processes related to the nutritional requirement for manganese, and homeostatic processes triggered by increased exposure. They noted that other observed liver effects, including the presence of glycogenosomes in the biliary area, groups of collagen fibers in the Disse's spaces, and degenerative changes in some centrilobular liver cells, may either be direct toxic phenomena or secondary responses to the effect exerted by manganese on other target tissues. ATSDR (2000) evaluated these data and designated 12 mg Mn/kg-day as the NOAEL in

this study.

In a 13-week study, NTP (1993) administered diets containing manganese sulfate at 0, 1,600, 3,130, 6,250, 12,500, or 25,000 ppm (mg $\text{MnSO}_4 \cdot \text{H}_2\text{O}$ per kg diet) to F344 rats (10/sex/dose). The baseline concentration of manganese in the control diets was approximately 92 ppm. Mean daily intake of manganese sulfate monohydrate ranged from 98 mg/kg-day (32 mg Mn/kg-day) for the low-dose to 1,669 mg/kg-day (542 mg Mn/kg-day) for the high-dose males. For females, the range was 114 mg/kg-day (37 mg Mn/kg-day) for the low-dose group and 1,911 mg/kg-day (621 mg Mn/kg-day) for the high-dose group. No rats died during the study, and no clinical or histopathology findings were attributed to manganese exposure. Females receiving diets with $\geq 6,250$ ppm manganese sulfate experienced decreased body weight gain. Absolute and relative liver weights were decreased in males receiving diets with $\geq 1,600$ ppm, and in females in the highest dose group only. Hematological effects were also reported. All groups of exposed males exhibited a significantly increased neutrophil count. Lymphocyte counts were decreased in males receiving $\geq 6,250$ ppm in the diet and females in the three highest dose groups. The low dose of 1,600 ppm (about 32 mg Mn/kg-day) was identified as the LOAEL for this study, based on effects on liver weight and neutrophil counts in male rats.

In a concurrent 13-week study, NTP (1993) administered diets containing manganese sulfate (monohydrate) at 0, 3,130, 6,250, 12,500, 25,000, or 50,000 ppm to B6C3F₁ mice (10/sex/dose). The baseline concentration of manganese in the control diets was approximately 92 ppm. Mean daily intake of manganese sulfate monohydrate ranged from 328 mg/kg-day (107 mg Mn/kg-day) for the low-dose to 8,450 mg/kg-day (2,746 mg Mn/kg-day) for the high-dose group. No deaths were attributed to manganese exposure. Both male and female mice in the highest dose group exhibited significantly decreased body weight gain. The male mice in the highest dose group also had decreased relative and absolute liver weights. Both sexes at the highest dose exhibited decreased hematocrit and hemoglobin concentrations. The NTP report suggests that these findings may indicate microcytic anemia, which may have resulted from a sequestration or deficiency of iron. Males receiving $\geq 25,000$ ppm also exhibited significantly lower leukocyte counts, although this finding was of questionable relevance to manganese exposure. No clinical findings were attributed to manganese exposure. The LOAEL for this study was 3,130 ppm (107 mg Mn/kg-day), based on significantly decreased body weight gain in male mice.

Komura and Sakamoto (1991) investigated the effect of different forms of manganese on potential adverse effects following ingestion exposure to the element. Male mice (8/group) were exposed either to a control diet containing 130 mg Mn/kg, or a diet supplemented with an additional 2,000 mg Mn/kg as $\text{MnCl}_2 \cdot 4\text{H}_2\text{O}$, $\text{Mn}(\text{CH}_3\text{COO})_2 \cdot 4\text{H}_2\text{O}$, MnCO_3 , or MnO_2 . Assuming an average food consumption of 13% of body weight, the average daily dose from the control diet was approximately 17 mg Mn/kg-day, while the average daily dose from the manganese-enriched diet was 276 mg Mn/kg-day. The duration of treatment was 100 days. The mice were tested for spontaneous motor activity after 30 days. Blood and tissues were analyzed at the termination of the experiment. No significant difference in food intake among groups was seen. Body weight gain and red and white blood cell count was decreased in groups that received $\text{Mn}(\text{CH}_3\text{COO})_2 \cdot 4\text{H}_2\text{O}$ or $\text{MnCl}_2 \cdot 4\text{H}_2\text{O}$. Motor activity was reduced in the MnCO_3 group. Tissue manganese concentrations in groups receiving supplemental manganese were 2 to 3 times that of controls. A LOAEL of 276 mg Mn/kg-day was identified in this study based on

decreased weight gain and hematological effects.

Hepatic

Leung et al. (1982) administered 1,000, 10,000, or 20,000 mg $\text{MnCl}_2 \cdot 4\text{H}_2\text{O}$ /L in drinking water to female Wistar rats. Exposure was initiated at conception by administration of manganese-containing drinking water to the dams, and continued through age 60 days. The estimated doses were 38.9, 389, and 778 mg Mn/kg-day (U.S. EPA, 1993). Treated rats exhibited liver necrosis and ultrastructural alterations that resembled human cholestasis. A LOAEL of 38.9 mg Mn/kg-day was identified in this study based on hepatic necrosis.

Suzuki et al. (1975) administered 250, 500, or 1,000 mg of MnO_2 in saline to 4 kg monkeys (*Macaca mullata*, age not specified) by subcutaneous injection. Injections were given once a week for 9 weeks. Estimated time-averaged doses correspond to 5.6, 11, and 23 mg Mn/kg-day. At autopsy, manganese-treated monkeys had irregular arrangement of hepatic cords and lymphocytic infiltration.

Neurological

Neurotoxicity is a known effect of long-term exposure to inhaled manganese in humans and animals, but the potential for neurotoxicity resulting from oral exposure is less well characterized. The only report of neurobehavioral toxicity in primates from orally administered manganese is by Gupta et al. (1980). Muscular weakness and lower limb rigidity were observed in 4 male rhesus monkeys given oral doses of manganese chloride (25 mg $\text{MnCl}_2 \cdot 4\text{H}_2\text{O}$ /kg, 6.9 mg Mn/kg-day) for 18 months. Histologic analysis showed degenerated neurons in the substantia nigra of the exposed animals at autopsy. There were no biochemical data. This study is of limited use for risk assessment because only one dose level was evaluated.

Studies involving oral exposures of manganese in drinking water or by gavage in neonatal rodent pups have reported changes in brain neurochemistry but generally do not show significant adverse effects on neurological development (ATSDR, 2000). Dorman et al. (2000) reported on neurological changes in rat pups dosed for 21 days postnatally with 11 or 22 mg Mn/kg-day by mouth in drinking water. The high dose group had significant increases in brain striatal DA (dopamine) and DOPAC (dihydroxyphenylacetic acid) concentrations and exhibited significant increases in the startle response, in the absence of pathological lesions. Because manganese is an essential nutrient in developing infants, the potential adverse effects from manganese deficiency may be of greater concern than potential toxicity from over-exposure.

Chandra et al. (1979) evaluated the neurological effects of manganese in mice exposed from birth. Neonatal mice were initially exposed by nursing from dams given 5 mg/mL MnCl_2 in their drinking water. After weaning at 25 days, the mice received manganese in their drinking water. Average exposures to manganese were determined to be 0.030 mg Mn/day for 60 days, 0.036 mg Mn/day through the 90th day, 0.075 mg Mn/day through the 120th day and 0.090 mg Mn/day for the interval between 150 and 180 days. Assuming a body weight of 0.03 kg at adulthood, the average daily dose at the termination of the experiment was approximately 3 mg Mn/kg-day. Elevated levels of striatal dopamine, norepinephrine, and homovanillic acid were

observed at 60 and 90 days of age, with a concomitant increase in spontaneous locomotor activity. Exposure past 90 days did not influence motor activity. Chandra et al. (1979) proposed that the hyperactivity observed in these mice was an early behavioral effect of excess manganese exposure that resulted from elevated dopamine and norepinephrine levels. The study authors further suggested that the observed hyperactivity may be comparable to the psychomotor excitement observed in the early stages of human manganism.

Chandra and Shukla (1981) exposed male albino rats to 1,000 mg/L $\text{MnCl}_2 \cdot 4\text{H}_2\text{O}$ (436 mg Mn/L) in drinking water. Assuming water consumption of 0.049 L/day and an average adult body weight of 0.35 kg, this level of exposure corresponds to an average daily dose of 61 mg Mn/kg-day. Levels of catecholamines, homovanillic acid, manganese, and the activity of monoamine oxidase were determined in the corpus striatum at time intervals up to 360 days. The investigators found initial increases in dopamine, norepinephrine, and homovanillic acid levels. This initial increase was followed by a period of normal levels. After 300 days, a decrease in all levels was observed. These changes were not correlated with the tissue concentration of manganese. The authors suggested that the decreased locomotor activity observed during later periods of manganese exposure may be related to lowered dopamine and norepinephrine levels in the brain, and that this stage of chronic toxicity may correspond to the later neurologic phase of motor dyskinesia in humans. Ali et al. (1981) conducted concurrent behavioral studies, and found an initial increase in spontaneous locomotor activity followed by a decrease during later periods of manganese exposure.

Purdey (2000) examined an endemic of sheep scrapie (a form of transmissible spongiform encephalopathy) in North Central/Eastern Iceland. Purdey reported high (200 ppm dry weight) levels of manganese in the herbage of areas where the sheep had suffered from a high incidence of scrapie for decades. Areas that were scrapie free had a mean level of 80 ppm dry weight of manganese in the herbage. These data, along with the data on CJD in humans (Purdey, 2000; Brown et al., 2000), suggest a link between high manganese and low copper in the etiology of these degenerative neurologic diseases, but further data are needed to support the hypothesis.

Reproductive and Developmental Studies

Reproductive Effects

The results of several studies in rats and mice indicate that the ingestion of high dose of manganese can delay reproductive maturation in male animals (ATSDR, 2000). Testosterone levels were reduced in male rats given an oral dose of 13 mg Mn/kg-day for 100-224 days (Laskey et al., 1982), while delayed growth of the testes was observed in young rats ingesting 140 mg Mn/kg-day for 90 days (Gray and Laskey, 1980). These effects do not appear to be severe enough to affect male reproductive function (ATSDR, 2000). Several studies which found effects on male reproductive organs, however, did not assess reproductive performance (IPCS, 1999).

Laskey et al. (1982) found a slight decrease in pregnancy rate but no significant effect on litter size, ovulations, resorption, or fetal weight when male and female rats were exposed to 130 mg Mn/kg-day (as Mn_3O_4) in the diet for 90-100 days prior to breeding.

The results of most studies indicate that oral exposure to manganese does not result in reproductive toxicity in the female rodent (e.g., rats and mice) and rabbit (See also ATSDR, 2000), although increased postimplantation loss was observed in female rats in at least one study (Szakmáry et al., 1995).

Developmental Effects

Results from several developmental studies in rodents and rabbits are equivocal. Data from the majority of these studies indicate that manganese exposure during part or all of gestation results in increased manganese levels in the pups (Järvinen and Ahlström, 1975; Kontur and Fechter, 1988), but generally causes either no measurable effect (Grant et al., 1997), transient effects such as weight decreases and hyperactivity (Pappas et al., 1997), or reversible effects on skeletal and organ development (Szakmáry et al., 1995). Joardar and Sharma (1990) administered varying levels of MnSO_4 (10.25, 20.25, and 61.00 mg/100 g bw) and KMnO_4 (6.5, 13, and 36 mg/100 g bw) to mice by gavage over a 3-week period. Sperm head abnormalities and the percentage of abnormal sperm were significantly increased in all treated groups.

Cancer and Mutagenicity Studies

Mutagenicity

Laboratory evidence for the mutagenicity and genotoxicity of high dose manganese exposure is equivocal. Joardar and Sharma (1990) administered varying levels of MnSO_4 (10.25, 20.25, and 61.00 mg/100 g bw) and KMnO_4 (6.5, 13, and 36 mg/100 g bw) to mice over a 3-week period. The frequencies of chromosomal aberrations and micronuclei in bone marrow cells were significantly increased. Dikshith and Chandra (1978) administered repeat oral doses of 0.014 mg Mn/kg-day (as MnCl_2) to albino rats for 180 days with no significant chromosomal damage noted in either bone marrow or spermatogonial cells.

In vitro bacterial gene mutation tests have yielded both positive and negative results, while *in vitro* tests with fungi and mammalian cells have been predominantly positive. Manganese chloride produced an increased frequency of mutations in *Salmonella typhimurium* strain TA1537, but induced negative results in other strains; manganese sulfate was reported to be both positive and negative in separate studies in *Salmonella* strain TA97, but negative in other strains (IPCS, 1999). Positive results were obtained with various manganese compounds in *Phytobacterium fischeri* and *Escherichia coli*, as well as in *Saccharomyces cerevisiae* and hamster embryo cells (ATSDR, 2000). In spite of these results, the genotoxic potential of manganese in humans is not known (IPCS, 1999).

Carcinogenicity

No animal studies are available that have investigated the potential carcinogenicity of manganese following inhalation or dermal exposure (ATSDR, 2000). A 2-year oral study of manganese sulfate in rats and mice produced equivocal evidence of carcinogenicity (NTP, 1993). In rats fed manganese sulfate (30-331 mg Mn/kg-day in males, 26-270 mg Mn/kg day in females), no treatment-related increases in tumor incidence were reported. In mice fed manganese sulfate (63-722 mg Mn/kg-day in males, 77-905 mg Mn/kg-day in females), the incidence of follicular cell adenoma of the thyroid was increased slightly in high-dose animals compared to controls. These increases were not statistically significant, and the tumors were observed at the end of the study only. However, follicular cell adenoma of the thyroid appears with low frequency in historical control male mice of this strain. Thus, the significance of these results and their relevance to typical human oral exposure to manganese is questionable.

Stoner et al. (1976) tested manganese sulfate in a mouse lung adenoma screening bioassay. These investigators exposed 6- to 8-week-old Strain A/Strong mice of both sexes (10/sex) to 6, 15 or 30 mg MnSO₄/kg via intraperitoneal injection. Doses were administered three times a week for a total of 21 injections. The cumulative doses were 132, 330 and 660 mg MnSO₄/kg, corresponding to 42.9, 107.2 and 214.4 mg Mn/kg. Observation continued for 22 weeks after the dosing period, and the mice were sacrificed at 30 weeks. The percentage of mice with tumors was elevated at the highest dose level, but the difference was not significant when compared with the vehicle controls. An apparent increase in the average number of pulmonary adenomas per mouse was noted both at the middle and high doses, but the increase was significant only at the high dose (660 mg MnSO₄/kg; $p < 0.05$). Although the study results are suggestive of carcinogenic activity, they do not conclusively meet the positive-response criteria (increased tumor incidence and an observable dose-response relationship) for the interpretation of lung tumor data in this mouse strain (Shimkin and Stoner, 1975).

6.0 QUANTIFICATION OF TOXICOLOGICAL EFFECTS

Limitations of Using Rodent Data In Assessing Neurotoxicity of Manganese

There are considerable species differences between rodents and primates in nutritional requirements as well as neurotoxicity of manganese. Therefore, rodents are of limited value in assessing the neurobehavioral effects associated with extrapyramidal deficits (Chandra, 1983).

Manganese has a propensity for accumulation in the melanin pigment (Lyden et al., 1985) and there is a relative lack of neuromelanin in rodents. This may explain the fact that neurologic effects (e.g., tremor, gait disorders) seen in primates are often preceded or accompanied by psychologic symptoms (e.g., irritability, emotional lability) but are not apparent in rodents.

Contributing to the difficulties in interpreting the toxicologic data from exposure of rodents to manganese is the substantial difference in species' requirements for this dietary element. The estimated requirement for rats is 50 mg Mn/kg diet (Rogers, 1979). Assuming a

food consumption equivalent to 5% of body weight (U.S. EPA, 1986a), this corresponds to a requirement for about 2.5 mg Mn/kg body weight (bw)/day. In contrast, the adequate intake for men and women (including lactating women) is about 2.3 -2.6 mg Mn/day, or about 0.03 - 0.07 mg Mn/kg bw/day, assuming a reference body weight of 70 kg. The dietary requirement for manganese in humans, then, is about two orders of magnitude lower than for rodents, suggesting that data derived from rodent studies may not be appropriate for use in deriving quantitative estimates of manganese levels that might be expected to result in adverse effects in humans.

As discussed above, rodent studies are limited in their use as a database from which to extrapolate effects in humans from over-exposure to manganese, because rodents do not exhibit the same neurologic deficits that humans do following exposure to manganese. On the other hand, the optimal levels of oral exposure to manganese for humans have not been well defined. For example, the available epidemiological studies in drinking water are of limited use in quantitative assessment of manganese toxicity, because of a lack of total exposure data. Balance studies are also not useful because short and moderate-term manganese balance studies are found not to be proportional to manganese intakes (Greger, 1999). Therefore, the health advisories (acute and chronic) are based on human dietary studies (See Sections below).

Dose Response and Risk Characterization

Manganese is a ubiquitous element that is essential for normal physiologic functioning in all animal species. Several disease states in humans have been associated with both deficiencies and excess intakes of manganese. Thus any quantitative risk assessment for manganese must take into account aspects of both the essentiality and the toxicity of manganese. In humans, many data are available providing information about the range of essentiality for manganese. In addition, there are many reports of toxicity to humans exposed to manganese by inhalation; much less is known, however, about oral intakes resulting in toxicity. As discussed above, rodents do not provide a good experimental model for manganese toxicity, and only one limited study in primates by the oral route of exposure is available (Gupta et al., 1980). The following assessment, therefore, focuses more on what is known to be a safe oral intake of manganese for the general human population. Finally, it is important to emphasize that individual requirements for, as well as adverse reactions to, manganese may be highly variable. The reference dose is estimated to be an intake for the general population that is not associated with adverse health effects; this is not meant to imply that intakes above the reference dose are necessarily associated with toxicity. Some individuals may, in fact, consume a diet that contributes more than 10 mg Mn/day without any cause for concern.

Determination of Health Advisories

Health Advisories (HAs) are generally determined for one-day, ten-day and life time exposure if adequate data are available that identify a sensitive noncarcinogenic end point of toxicity. The HAs for noncarcinogenic toxicants are derived using the following formula:

$$HA = \frac{(\text{NOAEL or LOAEL}) \times (\text{BW})}{(\text{UF}) (\text{L/day})} = \text{mg/L} (\text{ : g/L})$$

where:

NOAEL or LOAEL = No- or Lowest-Observed-Adverse-Effect Level (in mg/kg bw/day).

BW = assumed body weight of a child (10 kg) or an adult (70 kg).

UF = uncertainty factor (10, 100, 1,000 or 10,000) in accordance with EPA or NAS/ODW guidelines.

L/day = assumed daily water consumption of a child (1 L/day) or an adult (2 L/day).

One-day HA

No suitable information was found in the available literature for determining the One-day HA for manganese. The Ten-day HA for a child of 1 mg/L, calculated below is recommended for use as a conservative estimate for a 1-day exposure for both children and adults.

Ten-day HA

The adequate intake for a child 7 to 12 months old is 0.6 mg/day, and that from a 1 to 3-year-old is 1.2 mg/day (IOM, 2002). Taking the upper end of the adequate intake for a 10 kg child (up to 1 mg/day), and assuming the manganese comes from a maximum of 1 liter of formula per day, this would correspond to a manganese concentration of 1 mg/L. This 10-day HA for a child should also be protective of adults.

The Ten-day HA for a 10-kg child is calculated as follows:

$$1\text{- and }10\text{-day HA} = \frac{1 \text{ mg/day}}{1 \text{ L/day}} = 1 \text{ mg/L}$$

However, it is advised that for infants younger than 6 months, the lifetime HA of 0.3 mg/L be used even for an acute exposure of 10 days, because of the concerns for differences in manganese content in human milk and formula and the possibility of a higher absorption and lower excretion in young infants.

Lifetime Health Advisory

Lifetime health advisories are only developed for chemicals that are not likely to be carcinogenic to humans. The Lifetime HA represents that portion of an individual's total exposure that is attributed to drinking water and is considered protective of noncarcinogenic adverse health effects over a lifetime exposure. The Lifetime HA is derived in a three-step process. Step 1 determines the Reference Dose (RfD), formerly called the Acceptable Daily Intake (ADI). The RfD is an estimate (with uncertainty spanning perhaps an order of magnitude) of a daily exposure to the human population (including sensitive subgroups) that is likely to be without appreciable risk of deleterious health effects during a lifetime, and is derived from the NOAEL (or LOAEL), identified from a chronic (or subchronic) study, divided by an uncertainty factor(s). From the RfD, a Drinking Water Equivalent Level (DWEL) can be determined (Step 2). A DWEL is a medium-specific (i.e., drinking water) lifetime exposure level, assuming 100% exposure from that medium, at which adverse, noncarcinogenic health effects would not be expected to occur. The DWEL is derived from the multiplication of the RfD by the assumed body weight of an adult and divided by the assumed daily water consumption of an adult. The Lifetime HA in drinking water alone is determined in Step 3 by factoring in other sources of exposure, e.g., the relative source contribution (RSC). The RSC from drinking water is based on actual exposure data or, if data are not available, a value of 20% is assumed.

Step 1: Determination of Reference Dose (RfD)

Choice of Principal Study and Critical Effect

Manganese is an essential trace element that is required for normal physiologic function in humans and animals. Excess exposure to manganese, particularly via the inhalation route, is associated with neurotoxicological symptoms that resemble parkinsonism. Thus, derivation of the RfD must consider issues of both essentiality and toxicity.

The RfD is not based on rodent studies, because rodents do not exhibit the same neurologic deficits that humans do following exposure to manganese. For example, manganese at high doses induces Parkinson-like symptoms in humans and primates, but not in rodents. Because of the species difference in the response to manganese exposure, rodents are not good models for manganese toxicity studies. More details on these species differences can be seen in IRIS (U.S. EPA, 1997).

The oral toxicity data on which risk assessments may be based are quite limited in scope. It is recognized that the information available in humans is inherently more useful than data obtained from laboratory animals, especially non-primates. However, the toxicity data in humans following ingestion of large amount of manganese are not suitable for a quantitative assessment (For details, See Section 5.1.2 Long-term Exposure).

Dose-Response Assessment

Based on the dietary information described by WHO (1973), Schroeder et al. (1966), and NRC (1989), EPA estimated that an intake of 10 mg Mn/day (0.14 mg Mn/kg-day, assuming a body weight of 70 kg) in the diet is safe for a lifetime of exposure. This level of manganese represents

a NOAEL for chronic ingestion of manganese by humans. Application of a UF of 1 was used to derive the dietary RfD of 0.14 mg Mn/kg-day (U.S. EPA, 1997). The use of 1 as the UF is based on the following considerations. Manganese is an essential trace element for human health. The information used to derive the RfD was collected from many large human populations consuming normal diets over an extended period of time. The available data suggest that as long as physiological systems are not overwhelmed, humans exert effective homeostatic control over manganese so that body burden is kept relatively constant even when the concentration of manganese in the diet varies.

Application of Modifying Factor in Water

U.S. EPA (1997) has recommended the use of a modifying factor of 3 when assessing exposure to manganese from drinking water. Four reasons for this recommendation have been outlined:

- While toxicokinetic data suggest that there is no significant difference in absorption of manganese from food versus water, uptake of manganese from water appears to be greater in fasted individuals.
- The study by Kondakis et al. (1989) raises concern for possible adverse health effects associated with a lifetime consumption of drinking water containing 2 mg/L of manganese.
- Evidence exists that neonates absorb more manganese from the gastrointestinal tract, and excrete less of the absorbed manganese. Additional evidence suggests that absorbed manganese more easily crosses the blood-brain barrier in neonates. However, this evidence comes from animal studies; similar absorption studies in human neonates have not been performed, although Collipp et al. (1983) observed increased hair manganese levels in infants fed prepared formula compared with infants fed breast milk.
- Infant formula typically contains a much higher concentration of manganese than human or cows' milk. Powdered formula reconstituted with drinking water represents an additional source of manganese intake for a potentially sensitive population.

The potential impacts on children, when considered in conjunction with the likelihood that the most adverse effects of manganese (e.g., those seen in manganese miners or others with chronic overexposure to inhaled manganese) are likely to be irreversible and not manifested for many years after exposure, warrant caution until more definitive data are available (U.S. EPA, 1997). Recent data indicate, however, that in contrast to the symptoms of manganism, preclinical neurological effects of inhalation exposure of occupational workers to excess manganese are reversible (Roels et al., 1999). Similarly, symptoms of oral exposure to excess manganese in compromised individuals (e.g., individuals with liver disease who could not excrete manganese in the bile) were resolved when the exposure to excess manganese was decreased (Devenyi et al., 1994; Fell et al., 1996). These data indicate that the human body can recover from certain adverse effects of overexposure to manganese if the exposure is stopped

and the body can clear the excess. Significant uncertainty still exists, however, concerning at what level of manganese intake these preclinical neurological symptoms might occur.

The RfD for chronic exposure to manganese in drinking water is therefore calculated as follows:

$$\text{RfD} = \frac{10 \text{ mg/day}}{1 \times 70 \text{ kg}} = 0.14 \text{ mg/kg-day}$$

where:

10 mg/person-day = chronic no adverse effect level per person from dietary intake

1 = uncertainty factor

70 kg = assumed body weight of adult

Step 2: Determination of the Drinking Water Equivalent Level (DWEL)

$$\text{DWEL} = \frac{(0.14 \text{ mg/kg-day})(70 \text{ kg})}{3 (2 \text{ L/day})} = 1.6 \text{ mg/L (1600 : g/L)}$$

where:

0.14 mg/kg-day = RfD

70 kg = assumed body weight of adult

2 L/day = assumed water consumption by 70-kg adult

3 = modifying factor for assessing exposure to manganese from drinking water (mainly for bioavailability concerns)

Step 3: Determination of the Lifetime HA

The Lifetime HA = (1.6 mg/L)(20%) = 0.3 mg/L (rounded from 0.32 mg/L)

where

1.6 mg/L = DWEL

20% = relative source contribution for manganese in drinking water

Evaluation of Carcinogenic Potential

- Available data are equivocal regarding carcinogenic potential of manganese.
- Based on the Draft Guidelines for Carcinogen Risk Assessment (U.S. EPA, 2003b; 1999), there is inadequate information to assess the human carcinogenic potential for manganese.
- Based on 1986 Guidelines for Carcinogen Risk Assessment (U.S. EPA, 1986b) manganese has been classified in Group D: Not classified as to human carcinogenicity.

7.0 ANALYTIC METHODS AND TREATMENT TECHNOLOGY

Analytical Methods

Manganese can be measured by several well-documented analytical methods as shown in the Table 7-1.

Treatment Technology

The technologies include conventional treatment, ion exchange, reverse osmosis, lime softening, and chemical precipitation.

Conventional treatment usually includes pre-treatment steps of chemical coagulation, rapid mixing, and flocculation, followed by flocculation removal via sedimentation or flotation. After clarification, the water is then filtered. Common filter media include sand, and dual- and tri-media (e.g., silica sand, garnet sand, or anthracitic coal).

Ion exchange involves the selective removal of charged inorganic species from water using an ion-specific resin. The surface of the ion exchange resin contains charged functional groups that hold ionic species by electrostatic attraction. As water containing contaminant ions passes through a column of resin beds, charged ions on the resin surface are exchanged for the contaminant species in the water.

Reverse osmosis (RO) is similar to other membrane processes, such as ultrafiltration and nanofiltration, since water passes through a semi-permeable membrane. However, in the case of RO, the principle involved is not filtration. Instead, it involves the use of applied hydraulic pressure to oppose the osmotic pressure across a non-porous membrane, forcing the water from the concentrated solution side to the dilute solution side. The water does not travel through pores, but rather dissolves into the membrane, diffuses across, then dissolves out into the permeate. Most inorganic and many organic contaminants are rejected by the membrane and will be retained in the concentrate.

In the lime-softening process, the pH of the water being treated is raised sufficiently to precipitate calcium carbonate and, if necessary, magnesium hydroxide. Calcium and magnesium

ions in water cause hardness. After mixing, flocculation, sedimentation, and pH readjustment, the softened water is filtered.

Results of a preliminary technology assessment and review indicate that all of the above-mentioned techniques remove manganese from water. However, data indicate that chemical precipitation is the most effective option.

Table 7-1: Analytical Methods for Manganese

Method	Type	Method Detection Limit (µg/L)
EPA 200.7	Inductively Coupled Plasma Optical Emission Spectrometry (ICP)/Atomic Emission Spectrometry	1.0
SM 3120 B	ICP/Atomic Emission Spectrometry	Estimated Detection Limit (EDL) 2.0
EPA 200.8	ICP/Mass Spectrometry	0.02
SM 3111B	Atomic Absorption, direct aspiration	Instrument Detection Level (IDL) 10 Optimum conc. range 100-10,000
EPA 200.9	Stabilized Temperature Graphite Furnace AA Spectrometry	0.3
SM 3113 B	Atomic Absorption, Furnace	EDL 0.2 Optimum conc. range 1-30

8.0 OTHER CRITERIA, GUIDANCE AND STANDARDS

- There is no current Maximum Contaminant Level (MCL) for manganese.
- OSHA (1998) has established a maximum permissible air exposure limit for manganese fumes at no greater than 5 mg/m³ and elemental or inorganic manganese at no greater than 0.2 mg/m³, averaged over any 8-hour period in the workplace environment.

- The World Health Organization (WHO) has established a provisional guideline value for manganese of 0.5 mg/L. This guideline is provisional because there is some evidence of a potential hazard, but available information on health effects is limited. Concentrations of this substance at or below the health-based guideline value may affect appearance, taste, or odor of water.
- EPA recommends a concentration of manganese in drinking water not to exceed 0.05 mg/L (ppm). This recommendation is to avoid staining of clothing and fixtures and is believed to be more than adequate to protect human health.
- The Food and Drug Administration (FDA) also recommends 0.05 mg/L of manganese in bottled water.
- EPA has also established rules setting limits on the amount of manganese factories can discharge to the water.

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Appendix D Department Positive Pressure Policy



DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Safe Drinking Water

DOCUMENT NUMBER: 393-2129-003

TITLE: Policy for Determining When Loss of Positive Pressure Situations in the Distribution System Require One-Hour Reporting to the Department and Issuing Tier 1 Public Notification

EFFECTIVE DATE: Upon publication of notice as final in the *Pennsylvania Bulletin*

AUTHORITY: Pennsylvania's Safe Drinking Water Act (35 P.S. § 721.1 *et seq.*) and regulations at Title 25 Pa. Code Chapter 109

POLICY: Public water suppliers and Department of Environmental Protection (Department or DEP) staff should follow the guidance and procedures presented in this document to respond to loss of positive pressure situations in the distribution system.

PURPOSE: The purpose of this document is to establish uniform instructions and protocol for responding to loss of positive pressure situations in the distribution system to ensure the protection of public health.

APPLICABILITY: This guidance will apply to all public water systems.

DISCLAIMER: The policies and procedures outlined in this guidance are intended to supplement existing requirements. Nothing in the policies or procedures shall affect regulatory requirements.

The policies and procedures herein are not an adjudication or a regulation. DEP does not intend to give this guidance that weight or deference. This document establishes the framework, within which DEP will exercise its administrative discretion in the future. DEP reserves the discretion to deviate from this policy statement if circumstances warrant.

PAGE LENGTH: 10 pages

DEFINITIONS: See Title 25 Pa. Code Chapter 109

**POLICY FOR DETERMINING WHEN LOSS OF POSITIVE PRESSURE SITUATIONS IN
THE DISTRIBUTION SYSTEM REQUIRE ONE-HOUR REPORTING TO THE
DEPARTMENT AND ISSUING TIER 1 PUBLIC NOTIFICATION**

I. PURPOSE:

This document is intended to provide a policy to public water suppliers and Department of Environmental Protection (Department or DEP) staff for evaluating and responding to possible contamination of water distribution systems during loss of positive pressure situations caused by a physical disruption (i.e., line breaks, valve repairs, new construction, etc.) or an operational disruption (i.e., pump failure, power outage, telemetry failure, extreme fire flows, source outage, depletion of storage, etc.). This policy provides uniform procedures to ensure water supplies are safe for potable use during a loss of positive pressure situation and after pressure is restored.

II. BACKGROUND:

Any disruption of a water distribution system that results in a loss of positive pressure may allow contaminants to enter the distribution system. Water suppliers can minimize contamination by implementing acceptable DEP and water industry standards and practices. Pursuant to Chapter 109 of DEP's regulations and *Public Water Supply Manual - Part II*, water suppliers shall adhere to the most recent edition of the American Water Works Association (AWWA) Standard C-651, Disinfecting Water Mains, when repairing or replacing water mains to ensure that water quality is not compromised or degraded. Standard C-651 includes procedures for adequate flushing, disinfection, and microbiological testing. Refer to Section V for more information about Standard C-651.

In certain situations, additional measures may be necessary in order to protect public health. This guidance will discuss when one-hour reporting to DEP and issuance of Tier 1 public notification (PN) may be warranted.

III. APPLICABLE REGULATIONS OF TITLE 25 PA. CODE CHAPTER 109 (SAFE DRINKING WATER):

- A. **§ 109.4.** Requirement to effectively operate and maintain public water system facilities and to take whatever investigative or corrective action is necessary to assure that safe and potable water is continuously supplied to users.
- B. **§ 109.408.** Tier 1 public notice.
- C. **§ 109.602(a) - (c).** Acceptable design.
- D. **§ 109.606.** Chemicals, materials and equipment.
- E. **§ 109.607.** Pressures.
- F. **§ 109.701(a)(3).** One-hour reporting requirements.
- G. **§ 109.702.** Operation and maintenance plan. (a) A community water supplier shall develop an operation and maintenance plan for the community water system. The

operation and maintenance plan must generally conform to the guidelines contained in the Department's *Public Water Supply Manual* and contain at least the following information: ... (3) Procedures for repairing and replacing water mains that conform to the Department and water industry standards.

- H. **§ 109.709.** Cross-connection control program.
- I. **§ 109.710.** Disinfectant residual in the distribution system.
- J. **§ 109.711.** Disinfection of facilities prior to placing them into service. ... (b) After repairing a facility or performing other activities which place the facility out of service, and before returning the facility to service, the public water supplier shall disinfect the facilities in accordance with the most recent procedures established by the American Water Works Association.

IV. OTHER APPLICABLE REFERENCES:

- A. *Public Water Supply Manual - Part II: Community System Design Standards*, DEP #383-2125-108, May 6, 2006. All DEP publications are available on DEP's eLibrary website at www.depgreenport.state.pa.us/elibrary/.
- B. *Policy for Issuing and Removing Water Supply Warnings*, DEP #383-2129-005, October 3, 2009.
- C. Latest standards issued by the American Water Works Association (AWWA) and the American National Standards Institute (ANSI), including the most recent edition of ANSI/AWWA Standard C651 - Disinfecting Water Mains.

AWWA Standards are copyrighted materials. To place an order, please call AWWA Customer Service at 800-926-7337.

Individual AWWA Standards may also be ordered online from AWWA's website at www.awwa.org.

- D. *Disinfection of Pipelines and Storage Facilities Field Guide*, AWWA, 2006.
- E. *Recommended Standards for Water Works*, Great Lakes – Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers, most recent edition. These Standards are otherwise known as 10 State Standards.

V. POLICY:

A. **One-Hour Reporting Requirements for Loss of Positive Pressure Situations.**

Under § 109.701(a)(3)(iii), a public water supplier shall report the circumstances to the Department within 1 hour of discovery when circumstances exist which may adversely affect the quantity or quality of drinking water including, but not limited to, a situation that causes a loss of positive water pressure in any portion of the distribution system

where there is evidence of contamination or a water supplier suspects a high risk of contamination.

To clarify this requirement, **a water supplier shall notify DEP within 1 hour if ANY of the following circumstances occur:**

1. A loss of positive pressure within the distribution system is caused by a situation other than a main break, including (but not limited to) a power outage, pump failure, source outage, or depletion of storage. Situations such as these are likely to result in widespread impacts, increasing the likelihood of potential pathways for contamination, and making it extremely difficult to fully and effectively evaluate the situation to rule out the risk of contamination within all affected portions of the distribution system.
2. A loss of positive pressure within the distribution system is caused by a main break, repair, or replacement **AND**:
 - o There is evidence of contamination **OR**,
 - o A high risk of contamination.

Each main break, repair, or replacement needs to be evaluated on a case-by-case basis to determine whether there is evidence of or a high risk of contamination. These evaluations are considered process control decisions as defined in Title 25 Pa. Code Chapter 302 (Administration of the Water and Wastewater Systems Operators' Certification Program). Section 302.104(a) requires process control decisions to be made by an appropriately certified operator, and § 302.901(a)(5) identifies Class E as the appropriate classification for water distribution systems.

Therefore, it is critical to note that a Class E Distribution certified operator needs to be on site if possible, or at a minimum, be available for consultation by phone with someone who is on site and can clearly convey observations in order to evaluate each situation. **If a Class E certified operator is not available to evaluate the risk of contamination, the situation is considered to be a high risk for contamination and the 1-hour reporting requirement applies.**

Some examples of evidence of contamination within the distribution system include, but are not limited to:

- Changes to the physical characteristics of the water, such as unusual discoloration, taste or odor, or increased temperature due to backflow from a hot water heater.
- Changes to the water chemistry as evidenced by field test results.

Some examples of situations with a high risk of contamination include, but are not limited to:

- A flooded trench that cannot be properly dewatered or remedied by best management practices where the water level is at or above the level of the pipe being repaired.
- Evidence of contamination of nearby soils from leaking sewer lines near the site of the main break.
- Evidence of contamination of nearby soils from failing on-lot septic systems near the site of the main break.
- Evidence of contamination caused by back flow or a cross connection entering the distribution system in the area of the main break or other impacted area.
- High system unaccounted for water loss (i.e., > 20%) due to leaks in the distribution system.
- Low system water storage as a result of a main break, which causes loss of service to customers, including any customers located outside of the immediate area surrounding the break, such as those located in lower pressure zones or a higher elevation.
- Evidence of contamination caused by a stream or river crossing.
- Any condition that allows contaminated water to enter the distribution system.

Section 109.701(a)(3)(iii) provides that if there is loss of positive pressure in “any portion of the distribution system”, the 1-hour reporting requirement may apply. During a repair completed while maintaining positive pressure in the immediate area, other portions of the distribution system, including higher elevations or other lower pressure zones, may be vulnerable to a loss of pressure. The Class E certified operator evaluating the situation should consider the need to monitor pressure in areas of the system outside the immediate area surrounding the break.

If any portion of the distribution system experiences a loss of positive pressure, a potential public health threat may exist; therefore, that portion of the system needs to be evaluated to determine if the 1-hour reporting requirement applies.

3. Repairs to a main break associated with a loss of positive pressure cannot be completed as per the requirements under Standard C-651 and this policy. Section 109.711 requires public water suppliers to follow the most recent procedures established by AWWA for disinfection of facilities before returning the facility to service after repair. Therefore, all public water suppliers should have access to a copy of the standard; at a minimum, they should ensure that their

staff and/or contractors conducting repairs have access to **and** are following Standard C-651 for any main break repairs.

4. Special bacteriological samples collected as per Standard C-651 and this policy are positive for *E. coli*.

It is important to note that distribution pressures should be monitored using all available data, and the need for 1-hour reporting should be routinely re-evaluated, throughout any situation with the potential for loss of pressure in the distribution system. For example, a main break may be repaired under reduced operating pressure, but if the operator determines that positive pressure has been lost in any portion of the distribution system during the repair, that portion of the system needs to be evaluated to determine whether the 1-hour reporting requirement applies. If so, the time clock for 1-hour reporting would begin upon that determination.

B. Tier 1 PN Requirements for Loss of Positive Pressure Situations.

For any of the situations listed above, a water supplier shall also consult with DEP regarding the need for and issuance of Tier 1 PN in the form of a Boil Water Advisory (BWA) or some other water supply warning, as provided in 25 Pa. Code § 109.408(b)(3). Tier 1 PN will generally be required for situations meeting the criteria in items V.A.2, 3, or 4 above. Situations meeting the criteria in V.A.1 above may require a Tier 1 PN.

Refer to DEP's *Policy for Issuing and Removing Water Supply Warnings* for more information about PN and additional follow-up actions. For example, additional follow-up actions for a BWA may include: repairing/replacing water lines, establishing and maintaining higher chlorine residuals, flushing lines, collecting check samples, etc.

C. Best Management Practices for Main Breaks Which Result in a Loss of Positive Pressure (ANSI/AWWA Standard C-651).

Pursuant to 25 Pa. Code Chapter 109 and DEP's *Public Water Supply Manual - Part II*, water suppliers shall adhere to DEP and water industry standards and practices when repairing or replacing water mains to ensure that water quality is not compromised or degraded. Industry standards and practices include procedures for adequate flushing, disinfection, and microbiological testing. Practical application procedures based on the standard may also be found in AWWA's field guide entitled, *Disinfection of Pipelines and Storage Facilities*.

D. Best Management Practices Checklist for Main Breaks Which Result in a Loss of Positive Pressure (ANSI/AWWA Standard C-651).

The following checklist summarizes the best management practices to address main breaks resulting in a loss of positive pressure. It is important to note that this checklist is intended only to summarize the key points in AWWA Standard C-651; it is not intended

to be used in place of following the standard. Please refer to AWWA Standard C-651 for more details and full procedures.

1. Minimize entry of contaminants:

- ☐ Isolate the affected main segment.
- ☐ Shut off all affected service connections that lack adequate backflow prevention, where practical.
- ☐ Dewater excavation trenches prior to repairs. Disinfect wet trenches where practical or where evidence of contamination exists.

2. Disinfect the pipe:

- ☐ Swab or spray pipe interiors and associated fittings with a 1% solution of hypochlorite prior to installation.
- ☐ Where practical or where evidence of contamination exists, disinfect the entire affected main segment using one of the chlorination methods in Standard C-651. Refer to Standard C-651 for detailed disinfection procedures.

Note: Leaks or breaks that are repaired with clamping devices while the main remains full of pressurized water may present little danger of contamination and therefore may not require disinfection.

3. Remove contaminants and dechlorinate chlorinated-waste discharge:

- ☐ Flush the affected main segment until discolored water is eliminated and the disinfectant residual concentration in the water exiting the main is no higher than the residual disinfectant concentration in the distribution system.
- ☐ Dechlorinate the chlorinated-waste discharge by applying an adequate amount of reducing agent to thoroughly neutralize the chlorine residual remaining in the water. Refer to Standard C-651 for information about dechlorination procedures.

4. Determine effectiveness of procedures:

- ☐ Measure the disinfectant residual concentration to verify establishment of an acceptable residual.
- ☐ Collect special follow-up total coliform bacteriological samples in accordance with Standard C-651 to confirm that contamination did not occur during repair or replacement activities. Refer to Table 1 for the minimum number of required samples. Bacteriological samples must be analyzed by an appropriately accredited environmental laboratory.

Representative sampling locations must be downstream of the main break or repair. If the direction of flow is unknown, samples must be taken both up and downstream.

Table 1: Minimum # Daily Samples Required for Line Repair	
Population Affected¹	Minimum # of Samples
1 – 500	1
501 – 1,000	2
1,001 – 2,000	3
2,001 – 3,000	4
3,001 – 4,000	5
4,001 – 5,000	6
5,001 – 7,500	7
7,501 – 10,000	8
10,001 – 25,000	9
25,001 – 50,000	10
> 50,000	11

¹**Population affected = # service connections x 2.7 people**

- ☐ Sampling shall be continued until **two consecutive days of negative samples** are obtained.
- ☐ If follow-up total coliform sample results are negative for two consecutive days, go to check list item #5 and record the details in your Repair Log.

Where practical or where evidence of contamination exists, repaired or replaced water mains must be completely installed, flushed, disinfected, and satisfactory bacteriological sample results received prior to returning the main to service.

As per Standard C-651, and as per the properly certified operator's best professional judgment, after the appropriate disinfection and flushing procedures have been completed, the existing main may be returned to service prior to the completion of bacteriological analysis in order to minimize the time customers are without water.

- ☐ If any follow-up total coliform samples are positive, ensure that the lab is also analyzing the samples for *E. coli*.
- ☐ **If results are total coliform-positive only**, continue flushing, disinfecting, and collecting follow-up samples until samples are negative for total coliform bacteria.
- ☐ **If results are positive for *E. coli***, notify DEP within 1 hour and issue a BWA as soon as possible, but no later than 24 hours. Refer to DEP's *Policy for Issuing and Removing Water Supply Warnings* for additional information about follow-up actions.

5. **Complete recordkeeping:**

- ☐ Record details of the main break in a Repair Log, including all follow-up coliform sample results. Retain the Repair Log on site and make it available to DEP upon request.

If a water supplier cannot comply with Standard C-651 and this policy for responding to a loss of positive pressure situation, water quality may be compromised. The water supplier shall notify DEP within 1 hour of discovery of the loss of positive pressure to discuss whether Tier 1 PN is necessary.

E. **Special Considerations.**

In certain situations, if it is in the best professional judgement of an appropriately certified Class E operator, the collection of bacteriological samples may be avoided. In order to avoid collecting bacteriological samples, **all of the following criteria must be met:**

- There is no evidence of contamination or a high risk of contamination.
- All repair parts are disinfected in accordance with Standard C-651, or if service connections are shut off, the main is disinfected utilizing the slug chlorination method.
- Any area of repair is flushed thoroughly and background disinfectant residual levels of at least 0.2 mg/L (as required by 25 Pa. Code § 109.710) are re-established.
- The water supplier has had no Level 1 or Level 2 assessments triggered under the Revised Total Coliform Rule in the last year.
- The water supplier is in compliance with the requirements of Pennsylvania's Water and Wastewater Systems Operators' Certification Act and associated regulations. Specifically, an available operator with the appropriate level of certification must make all process control decisions related to repairing or replacing the water main.
- The crew must utilize written standard operating procedures that are in conformance with Standard C-651 and this policy.

F. Maintain a Repair Log for Loss of Positive Pressure Situations.

Water suppliers should record details of the loss of positive pressure event in their repair log. This log should include:

- Date, location, and cause of the loss of positive pressure.
- If the cause is a main break, the type of repair needed to correct the break.
- Time it was discovered.
- Population affected.
- Time of notification to DEP, name and phone number of DEP representative notified, and summary of conversation.
- Length of time required to repair.
- Type of disinfection method used.
- Date and time disinfectant residuals were detected.
- Date and time coliform bacteria samples were collected, or an indication that appropriate criteria were met to avoid bacteriological sampling.
- Results of the coliform bacteria samples and the date results were obtained.

The log should be made available to DEP upon request.

VI. DEP FIELD OPERATIONS REGIONAL OFFICES:

For more information, call the DEP regional office in your area or contact:

**Department of Environmental Protection
Bureau of Safe Drinking Water
P.O. Box 8467
Harrisburg, PA 17105-8467
717-787-9633**

To determine the contact information for your local DEP office, consult the DEP document number 3930-FM-BSDW0560, available at the following link:

www.depgreenport.state.pa.us/elibrary/GetDocument?docId=1422467&DocName=DEP%20OFFICE%20AND%20COUNTY%20HEALTH%20DEPARTMENT%20CONTACT%20INFORMATION%20BY%20COUNTY.PDF.

**Appendix E Complete Laboratory Testing Results
from November 2019 – November 2020**



East Dunkard Water Authority Residential Water Testing Results Summary			Address	Water Plant	466 Davistown Road	487 Davistown Road	437 Steele Hill Road	137 School House Road	189 Mt. Joy Road	584 Taylortown Rd
			Customer	Tap off Main Line to Griffin Tank 12/9/19	Kitchen Sink 11/8/19	Kitchen Sink 11/8/19	Kitchen Sink 11/11/19	Kitchen Sink 11/14/19	Outside Hose Bib 11/18/19	Exterior Yard Hydrant 11/18/19
			Sampling Location							
			Date Sampled							
Testing Parameter	Testing Limits		Maximum Contaminant Level (MCLs)	Location 1	Location 2	Location 3	Location 4	Location 5	Location 6	Location 7
	QL	MDL								
Total Suspended Solids	25.0	5.0		MD	P 5.0	MD	MD	MD	MD	MD
Total Dissolved Solids	25.0	10.0	500 mg/L	171.0	207.0	208.0	248.0	241.0	165.0	241.0
Iron	0.1	0.03	0.3 mg/L	MD	0.1	0.1	P 0.05	P 0.04	0.1	0.1
Manganese	0.04	0.01	0.05 mg/L	P 0.03	0.2	0.1	0.04	0.04	0.2	0.1
Aluminum	0.1	0.03	0.2 mg/L	MD	0.2	MD	P 0.04	P 0.04	0.1	0.1
Chloride		3.0	250 mg Cl/L	20.0	17.5	17.5	21.5	19.0	16.0	20.5
Cadmium	0.001	0.0004	0.005 mg/L	MD	MD	MD	MD	MD	MD	MD
Chromium	0.01	0.001	0.1 mg/L	MD	MD	MD	MD	MD	MD	MD
Selenium	0.01	0.003	0.05 mg/L	MD	MD	MD	MD	MD	MD	MD
Zinc	0.25	0.01	5.0 mg/L	MD	MD	MD	MD	MD	MD	MD
Lead*	0.005	0.005	0.005 mg/L	MD	MD	MD	MD	MD	MD	MD
Copper*	0.05	0.01	1.0 mg/L	MD	MD	MD	MD	MD	MD	MD
Notes:										
	mg/L	milligrams per liter or parts per million								
	µg/L	micrograms per liter or parts per billion								
	QL	Quantitation Limit, the								
	MDL	Method Detection Level, the smallest ammount detectable by the given method								
	P	Estimated value between method detection and practical quantitation limit.								
	MD	Indicates less than method detection limit								
Cell Colors										
Below Limits										
Equal to Limit										
Above Limit										

H&H WATER CONTROLS, INC.

565 Route 88 South
Carmichaels, PA 15320

Telephone: (724) 966-2278 Fax: (724) 966-7924
PA Lab # 30-00287

Ship To East Dunkard Water Authority
2790 S. EightyEight Road
P.O. Box 241
Dilliner, PA 15327

Report No.	354958

Report Date: 01/09/2020
H&H Sample No: 19-16575.1-2-3
P.O. Number:
Collection Date: 12/09/2019
Collection Time: 13:30
Collected By: SC
Received Date: 12/09/2019
Sample Id: Water Plant Lab Faucet

LABORATORY ANALYSIS REPORT

Method No.	Parameter	QL*	MDL*	Results	Units	Date / Time / By
SM22 2540D(97)2	Total Suspended Solids	10.0	5.0	MD <5.0	mg/L	1212191550et
SM22 2540C (97)	Total Dissolved Solids	25.0	10.0	171.0	mg/L	1213191640ns
SM22 3111BFe (99)	Iron	0.1	.03	MD <0.03	mg/L	1212191051cs
SM22 3111B (99)	Manganese	.04	.01	P 0.03	mg/L	1212191208cs
SM22 3111D (99)	Aluminum	.1	.03	MD <0.03	mg/L	1213191420cs
SM22 4500Cl-B(97)	Chloride		3.0	20.0	mg Cl-/L	1217191651cs
SM 3113BCd(04) OE	Cadmium	.001	.0004	MD<0.0004	mg/L	1226191526cs
SM 3113BCr (04) OE	Chromium	.01	.001	MD<0.001	mg/L	0106201557cs
SM 3113BSe(04) OE	Selenium	.01	.003	MD<0.003	mg/L	1220191203cs
SM22 3111BZn(99)	Zinc	.25	.01	MD <0.01	mg/L	1212191653cs
SM 3113BPb(04) OE	Lead	.005	.0005	MD<0.0005	mg/L	1219191729cs
SM22 3111BCu(99)	Copper	.05	.01	MD <0.01	mg/L	1212191459cs

*QL = Quantitation Limit

*MDL = Method Detection Level

MD-Indicates less than method detection limit. P-Estimated value between method detection and practical quantitation limit. Page 1 of 1



Debra A. Harris
Laboratory Director
H&H WATER CONTROLS, INC.

H&H WATER CONTROLS INC.
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724.966.2278 Fax: 724.966.7924
hnhwc@windstream.net

CHAIN OF CUSTODY /
SAMPLE ANALYSIS REQUEST
(REVISION 1-18-18)

Customer Name East Dunbar Water Authority

Billing Address

PO Box 241 27905, Eighth Light Road

Turn Around Time:
☐ Normal
(10-12 Business Days)
☐ Rush
(Surcharges May Apply)

City

Dilliner

State

PA

Zip Code

15327

Telephone No.

724-943-3713

Fax No.

724-943-4195

Contact Person

Sam Carroll

E-Mail

sc@charmonville.com

Project Name

EDWA: Water Treatment Plant

Sampled By:

Samuel A Carroll

Send Results By:
☐ Mail
☐ Fax
☒ E-Mail

Purchase Order No.

Sample Description / Location

Water Plant Lab Faucet

Collection Date

12/9/2019

Collection Time

1:30PM

C=Composite or G=Grab

Matrix (see key)

TSS-TDS-Chloride

Fe-Mn-Al-Pb-Cu-Zn-Cd-Cr

Selenium

Login Number:

16575

Lab Containers # (Lab Use Only)

Analysis Requested

Sample Matrix Key

DW = Drinking Water
WW = Wastewater
GW = Groundwater
SW = Stormwater
SL = Sludge
W = Well
SP = Spring
ST = Stream
PD = Pond
PL = Pool
OL = Other

Comments:

Preservative Used: 1 = HCl 2 = HNO₃ 3 = H₂SO₄

Relinquished By / Company Name

Date

Time

Received By / Company Name

Date

Time

1 Samuel A Carroll

12-9-19

1535

2

SP-2 H&H Water

12-9-19

1535

Condition (Lab Use Only)

Temp: 9.5°C

of Bottles: 3

Received Information

Performed By: g

FIELD TESTS:

pH:

Temp:

DO:

Cl₂:

FLOW:

OTHER:

Checked?

Preserved

At Lab?

Preservation

Comments:

H&H WATER CONTROLS, INC.

565 Route 88 South
Carmichaels, PA 15320

Telephone: (724) 966-2278 Fax: (724) 966-7924
PA Lab # 30-00287

Ship To East Dunkard Water Authority
2790 S. EightyEight Road
P.O. Box 241
Dilliner, PA 15327

Report No.**354181**

Report Date: 12/05/2019

H&H Sample No: 19-16326.1-2-3

P.O. Number:

Collection Date: 11/08/2019

Collection Time: 11:24

Collected By: SC

Received Date: 11/08/2019

Sample Id: 466 Davistown Rd
Kitchen Sink

LABORATORY**ANALYSIS****REPORT**

Method No.	Parameter	QL*	MDL*	Results	Units	Date / Time / By
SM22 2540D(97)3	Total Suspended Solids	12.5	5.0	P 5.0	mg/L	1112191430ns
SM22 2540C (97)	Total Dissolved Solids	25.0	10.0	207.0	mg/L	1115191600dh
SM22 3111BFe (99)	Iron	0.1	.03	0.1	mg/L	1125191451cs
SM22 3111B (99)	Manganese	.04	.01	0.2	mg/L	1125191558cs
SM22 3111D (99)	Aluminum	.1	.03	0.2	mg/L	1126191138cs
SM22 4500Cl-B(97)	Chloride		3.0	17.5	mg Cl-/L	1127191420cs
SM 3113BCd(04) OE	Cadmium	.001	.0004	MD<0.0004	mg/L	1120191603cs
SM 3113BCr (04) OE	Chromium	.01	.001	MD<0.001	mg/L	1119191622cs
SM 3113BSe(04) OE	Selenium	.01	.003	MD 0.003	mg/L	1121191549cs
SM22 3111BZn(99)	Zinc	.25	.01	MD <0.01	mg/L	1125191650cs
SM 3113BPb(04) OE	Lead	.005	.0005	MD<0.0005	mg/L	1122191739cs
SM22 3111BCu(99)	Copper	.05	.01	MD <0.01	mg/L	1125191054cs

*QL = Quantitation Limit

*MDL = Method Detection Level

P-Estimated value between method detection and practical quantitation limit.

MD-Indicates less than method detection limit. Page 1 of 1



Debra A. Harris

Laboratory Director

H&H WATER CONTROLS, INC.

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565 Route 88 South
Carmichaels, PA 15320

Telephone: (724) 966-2278 Fax: (724) 966-7924
PA Lab # 30-00287

Report No.**354182**

Report Date: 12/05/2019

H&H Sample No: 19-16326.4-5-6

P.O. Number:

Collection Date: 11/08/2019

Collection Time: 11:40

Collected By: SC

Received Date: 11/08/2019

Sample Id: 487 Davistown Rd
Kitchen Sink

Ship To East Dunkard Water Authority
2790 S. EightyEight Road
P.O. Box 241
Dilliner, PA 15327

LABORATORY**ANALYSIS****REPORT**

Method No.	Parameter	QL*	MDL*	Results	Units	Date / Time / By
SM22 2540D(97)4	Total Suspended Solids	25.0	5.0	MD <5.0	mg/L	1112191430ns
SM22 2540C (97)	Total Dissolved Solids	25.0	10.0	208.0	mg/L	1115191600dh
SM22 3111BFe (99)	Iron	0.1	.03	0.1	mg/L	1125191451cs
SM22 3111B (99)	Manganese	.04	.01	0.1	mg/L	1125191558cs
SM22 3111D (99)	Aluminum	.1	.03	MD <0.03	mg/L	1126191138cs
SM22 4500Cl-B(97)	Chloride		3.0	17.5	mg Cl-/L	1127191420cs
SM 3113BCd(04) OE	Cadmium	.001	.0004	MD<0.0004	mg/L	1120191603cs
SM 3113BCr (04) OE	Chromium	.01	.001	MD<0.001	mg/L	1119191622cs
SM 3113BSe(04) OE	Selenium	.01	.003	MD<0.003	mg/L	1121191549cs
SM22 3111BZn(99)	Zinc	.25	.01	MD <0.01	mg/L	1125191650cs
SM 3113BPb(04) OE	Lead	.005	.0005	MD<0.0005	mg/L	1122191739cs
SM22 3111BCu(99)	Copper	.05	.01	MD <0.01	mg/L	1125191054cs

*QL = Quantitation Limit

*MDL = Method Detection Level

MD-Indicates less than method detection limit. Page 1 of 1



Debra A. Harris
Laboratory Director
H&H WATER CONTROLS, INC.

LATER CONTROLS INC.
1001 SOUTH, CARMICHAELS, PA 15320
2278 Fax: 724.966.7924
hwc@windstream.net

CHAIN OF CUSTODY /
SAMPLE ANALYSIS REQUEST
(REVISION 1-18-18)

Hard Water Authority

Billing Address

P.O. Box 241 2790 South Elwyn Rd

City

Dilliner

Telephone No.

724-943-3713

Fax No.

724-943-4195

Contact Person

Sam Carroll

E-Mail

sc@harkmanllc.com

Project Name

466 Davistown Road

Sampled By:

Sam Carroll Sam Carroll

Sample Description / Location

466 Davistown Road Kitchen Sink

Collection Date 11/28/2019 11:24 AM

C=Composite or G=Grab

Matrix (see key)

Turn Around Time:

☐ Normal
(10-12 Business Days)

☐ Rush
(Surcharges May Apply)

Purchase Order No.

Send Results By:

☐ Mail

☐ Fax

☐ E-Mail

Login Number:

16326

Page 1 of 2

Lab Containers # (Lab Use Only)

Analysis Requested

Sample Matrix Key

DW = Drinking Water

WW = Wastewater

GW = Groundwater

SW = Stormwater

SL = Sludge

W = Well

SP = Spring

ST = Stream

PD = Pond

PL = Pool

OL = Other

Comments:

Relinquished By / Company Name Date Time Received By / Company Name Date Time

1 X Samuel M Carroll

11-819

1242

2 J De Harkman

11-819

1242

Condition (Lab Use Only)

3

4

6

Temp: 4.6 °C

of Bottles: 3

Preserved At Lab?

Preservation Comments:

FIELD TESTS:

pH:

Temp:

DO:

Cl₂:

FLOW:

OTHER:

Checked?

Yes

No

Yes

No

Yes

No

Yes

No

Yes

No

H&H WATER CONTROLS INC.
565 ROUTE 88 SOUTH, CARMICHAELS, PA 15320
724.966.2278 Fax: 724.966.7924
hnhwc@windstream.net

CHAIN OF CUSTODY /
SAMPLE ANALYSIS REQUEST
(REVISION 1-18-18)

Customer Name

East Duquesne Water Authority

Billing Address

200 Box 241 2790 South Lighty Road

City D. Limer

State PA

Zip Code 15307

Telephone No.

724-943-3713

Fax No.

724-943-4195

Contact Person

Sam Carroll

E-Mail

sc@harsbomille.com

Project Name

SED: 487 Doveston Rd

Sampled By:

Sam Carroll

Turn Around Time:

☐ Normal
(10-12 Business Days)

☐ Rush
(Surcharges May Apply)

Purchase Order No.

Send Results By:

☐ Mail

☐ Fax

☐ E-Mail

Sample Description / Location

487 Doveston Rd Kitchen Sink

Collection Date

11/8/19

Collection Time

11:46 AM

C=Composite or G=Grab

Matrix (see key)

TSS-TDS-Chloride

Fe-Mn-Al-Pb-Cu-Zn-Cd-Cr

Selenium

Login Number:

16326

Lab Containers # (Lab Use Only)

Analysis Requested

Sample Matrix Key

DW = Drinking Water

WW = Wastewater

GW = Groundwater

SW = Stormwater

SL = Sludge

W = Well

SP = Spring

ST = Stream

PD = Pond

PL = Pool

OL = Other

Comments:

Preservative Used: 1 = HCl 2 = HNO₃ 3 = H₂SO₄

Receipt Information

Performed By:

Condition (Lab Use Only)

Temp: 4.6 °C

Iced: Yes

pH

Checked?

Yes ☐ No ☐

Preserved

At Lab?

Yes ☐ No ☐

Preservation

Comments:

Relinquished By / Company Name

Samuel M Carroll

Date

4-8-19

Time

12:42

Received By / Company Name

Samuel M Carroll

Date

4-8-19

Time

12:42

FIELD TESTS:

pH:

Temp:

DO:

Cl₂:

FLOW:

OTHER:

H&H WATER CONTROLS, INC.

565 Route 88 South
Carmichaels, PA 15320

Telephone: (724) 966-2278 Fax: (724) 966-7924
PA Lab # 30-00287

Report No.**354183**

Report Date: 12/05/2019

H&H Sample No: 19-16337.1-2-3

P.O. Number:

Collection Date: 11/11/2019

Collection Time: 15:20

Collected By: JH

Received Date: 11/11/2019

Sample Id: 437 Steele Hill Rd
Kitchen Sink

Ship To East Dunkard Water Authority
2790 S. EightyEight Road
P.O. Box 241
Dilliner, PA 15327

LABORATORY**ANALYSIS****REPORT**

Method No.	Parameter	QL*	MDL*	Results	Units	Date / Time / By
SM22 2540D(97)4	Total Suspended Solids	25.0	5.0	MD <5.0	mg/L	1112191430ns
SM22 2540C (97)	Total Dissolved Solids	25.0	10.0	248.0	mg/L	1115191600dh
SM22 3111BFe (99)	Iron	0.1	.03	P 0.05	mg/L	1125191451cs
SM22 3111B (99)	Manganese	.04	.01	0.04	mg/L	1125191558cs
SM22 3111D (99)	Aluminum	.1	.03	P 0.04	mg/L	1126191138cs
SM22 4500Cl-B(97)	Chloride		3.0	21.5	mg Cl-/L	1127191420cs
SM 3113BCd(04) OE	Cadmium	.001	.0004	MD<0.0004	mg/L	1120191603cs
SM 3113BCr (04) OE	Chromium	.01	.001	MD<0.001	mg/L	1119191622cs
SM 3113BSe(04) OE	Selenium	.01	.003	MD<0.003	mg/L	1121191549cs
SM22 3111BZn(99)	Zinc	.25	.01	MD <0.01	mg/L	1125191650cs
SM 3113BPb(04) OE	Lead	.005	.0005	MD<0.0005	mg/L	1122191739cs
SM22 3111BCu(99)	Copper	.05	.01	MD <0.01	mg/L	1125191054cs

*QL = Quantitation Limit

*MDL = Method Detection Level

P-Estimated value between method detection and practical quantitation limit.

MD-Indicates less than method detection limit. Page 1 of 1


Debra A. Harris
Laboratory Director
H&H WATER CONTROLS, INC.

H&H WATER CONTROLS INC.
TE 88 SOUTH, CARMICHAELS, PA 15320
4.966.2278 Fax: 724.966.7924
hnhwc@windstream.net

CHAIN OF CUSTODY /
SAMPLE ANALYSIS REQUEST
(REVISION 1-18-18)

Name

East Dunhard Water Authority

Billing Address

Box 241 2790 S. Eighth, Eighth Road

City

D. Hanover

State

PA

Zip Code

15327

Telephone No.

724-943-3713

Fax No.

724-943-4195

Contact Person

Sam Carroll

E-Mail

sc@hanoverllc.com

Project Name

East Dunhard Residential Sampling

Sampled By:

James Harshtman

Sample Description / Location

437 Steele Hill Rd - Kitchen Sink

Collection Date

11/11/19

Collection Time

3:20 PM

C=Composite or G=Grab

Matrix (see key)

G

DW

1

1

1

TSS-TDS-Chloride

Fe-Mn-Al-Pb-Cu-Zn-Cd-Cr

Selenium

Login Number:

16333

Lab Containers # (Lab Use Only)

1 2 3

Analysis Requested

Sample Matrix Key

DW = Drinking Water

WW = Wastewater

GW = Groundwater

SW = Stormwater

SL = Sludge

W = Well

SP = Spring

ST = Stream

PD = Pond

PL = Pool

OL = Other

Comments:

Preservative Used: 1 = HCl 2 = HNO₃ 3 = H₂SO₄

Relinquished By / Company Name

11/11/19 1555

Date

11/11/19 1555

Received By / Company Name

2 3rd H&H Water

Date

11/11/19 1555

Time

2 2

Condition (Lab Use Only)

Temp: 14.1°C # of Bottles: 3

iced: yes

Received Information

Performed By: 98

Preservation Comments:

PH:

Temp:

DO:

Cl₂:

FLOW:

OTHER:

Checked? Yes ☒ No ☐

Preserved At Lab? Yes ☐ No ☒

H&H WATER CONTROLS, INC.

565 Route 88 South
Carmichaels, PA 15320

Telephone: (724) 966-2278 Fax: (724) 966-7924
PA Lab # 30-00287

Ship To East Dunkard Water Authority
2790 S. EightyEight Road
P.O. Box 241
Dilliner, PA 15327

Report No.**354184**

Report Date: 12/05/2019
H&H Sample No: 19-16369.1-2-3
P.O. Number:
Collection Date: 11/14/2019
Collection Time: 09:20
Collected By: MM
Received Date: 11/14/2019
Sample Id: 137 School House
Kitchen Sink

LABORATORY**ANALYSIS****REPORT**

Method No.	Parameter	QL*	MDL*	Results	Units	Date / Time / By
SM22 2540D(97)4	Total Suspended Solids	25.0	5.0	MD <5.0	mg/L	1115191430ns
SM22 2540C (97)	Total Dissolved Solids	25.0	10.0	241.0	mg/L	1115191600dh
SM22 3111BFe (99)	Iron	0.1	.03	P 0.04	mg/L	1125191451cs
SM22 3111B (99)	Manganese	.04	.01	0.04	mg/L	1125191558cs
SM22 3111D (99)	Aluminum	.1	.03	P 0.04	mg/L	1126191138cs
SM22 4500Cl-B(97)	Chloride		3.0	19.0	mg Cl-/L	1127191420cs
SM 3113BCd(04) OE	Cadmium	.001	.0004	MD<0.0004	mg/L	1120191603cs
SM 3113BCr (04) OE	Chromium	.01	.001	MD<0.001	mg/L	1119191622cs
SM 3113BSe(04) OE	Selenium	.01	.003	MD<0.003	mg/L	1121191549cs
SM22 3111BZn(99)	Zinc	.25	.01	MD <0.01	mg/L	1125191650cs
SM 3113BPb(04) OE	Lead	.005	.0005	MD<0.0005	mg/L	1122191739cs
SM22 3111BCu(99)	Copper	.05	.01	MD <0.01	mg/L	1125191054cs

*QL = Quantitation Limit

*MDL = Method Detection Level

P-Estimated value between method detection and practical quantitation limit.

MD-Indicates less than method detection limit. Page 1 of 1



Debra A. Harris
Laboratory Director
H&H WATER CONTROLS, INC.

H&H WATER CONTROLS INC.
SUITE 88 SOUTH, CARMICHAELS, PA 15320
724.966.2278 Fax: 724.966.7924
hnhwc@windstream.net

CHAIN OF CUSTODY /
SAMPLE ANALYSIS REQUEST
(REVISION 1-18-18)

Customer Name
H&HMAN CE GROUP

Billing Address
100 CONNORS AVE RD

City
WASHINGTON

Telephone No.
724 553 4125

State
PA

Zip Code
15301

Contact Person
SAM CARROLL

E-Mail
SC@H&HMANUAL.COM

Project Name
EAST DUNKARD WATER AUTHORITY - 137 SCHOOL HOUSE

Sampled By
MATT MALIK

Turn Around Time:
☒ Normal
(10-12 Business Days)
☐ Rush
(Surcharges May Apply)

Purchase Order No.

Send Results By:
☐ Mail
☐ Fax
☐ E-Mail

C=Composite or G=Grab

Matrix (see key)

TSS-TDS-Chloride

Fe-Mn-Al-Pb-Cu-Zn-Cd-Cr

Selenium

Login Number:
16369

Lab Containers # (Lab Use Only)
1 2 3

Analysis Requested

Sample Matrix Key

DW = Drinking Water
WW = Wastewater
GW = Groundwater
SW = Stormwater
SL = Sludge
W = Well
SP = Spring
ST = Stream
PD = Pond
PL = Pool
OL = Other

Comments:

Preservative Used: 1 = HCl 2 = HNO₃ 3 = H₂SO₄

Relinquished By / Company Name

Date

Time

Received By / Company Name

Date

Time

Condition (Lab Use Only)

Temp: 15.8 °C # of Bottles: 3

Temp: 15.8 °C

pH

Checked?

Preserved

At Lab?

Receipt Information

Performed By:

Preservation Comments:

H&H WATER CONTROLS, INC.

565 Route 88 South
Carmichaels, PA 15320

Telephone: (724) 966-2278 Fax: (724) 966-7924
PA Lab # 30-00287

Ship To East Dunkard Water Authority
2790 S. EightyEight Road
P.O. Box 241
Dilliner, PA 15327

Report No.**354185**

Report Date: 12/05/2019

H&H Sample No: 19-16403.1-2-3

P.O. Number:

Collection Date: 11/15/2019

Collection Time: 18:20

Collected By: BL

Received Date: 11/18/2019

Sample Id: 189 Mt. Joy Rd

Outside Pool House Bib

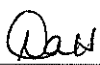
LABORATORY**ANALYSIS****REPORT**

Method No.	Parameter	QL*	MDL*	Results	Units	Date / Time / By
SM22 2540D(97)4	Total Suspended Solids	25.0	5.0	MD <5.0	mg/L	1120191455et
SM22 2540C (97)	Total Dissolved Solids	25.0	10.0	165.0	mg/L	1121191600ns
SM22 3111BFe (99)	Iron	0.1	.03	0.1	mg/L	1125191451cs
SM22 3111B (99)	Manganese	.04	.01	0.2	mg/L	1125191558cs
SM22 3111D (99)	Aluminum	.1	.03	0.1	mg/L	1126191138cs
SM22 4500Cl-B(97)	Chloride		3.0	16.0	mg Cl-/L	1127191420cs
SM 3113BCd(04) OE	Cadmium	.001	.0004	MD<0.0004	mg/L	1120191603cs
SM 3113BCr (04) OE	Chromium	.01	.001	MD<0.001	mg/L	1119191622cs
SM 3113BSe(04) OE	Selenium	.01	.003	MD<0.003	mg/L	1121191549cs
SM22 3111BZn(99)	Zinc	.25	.01	MD <0.01	mg/L	1125191650cs
SM 3113BPb(04) OE	Lead	.005	.0005	MD<0.0005	mg/L	1122191739cs
SM22 3111BCu(99)	Copper	.05	.01	MD <0.01	mg/L	1125191054cs

*QL = Quantitation Limit

*MDL = Method Detection Level

MD-Indicates less than method detection limit. Page 1 of 1


Debra A. Harris
Laboratory Director
H&H WATER CONTROLS, INC.

H&H WATER CONTROLS, INC.

565 Route 88 South
Carmichaels, PA 15320

Telephone: (724) 966-2278 Fax: (724) 966-7924
PA Lab # 30-00287

Report No.**354186**

Report Date: 12/05/2019

H&H Sample No: 19-16403.4-5-6

P.O. Number:

Collection Date: 11/18/2019

Collection Time: 15:15

Collected By: JH

Received Date: 11/18/2019

Sample Id: 584 Taylortown Rd
Exterior Hydrant-Yard

Ship To East Dunkard Water Authority
2790 S. EightyEight Road
P.O. Box 241
Dilliner, PA 15327

LABORATORY**ANALYSIS****REPORT**

Method No.	Parameter	QL*	MDL*	Results	Units	Date / Time / By
SM22 2540D(97)4	Total Suspended Solids	25.0	5.0	MD <5.0	mg/L	1120191455et
SM22 2540C (97)	Total Dissolved Solids	25.0	10.0	241.0	mg/L	1121191600ns
SM22 3111BFe (99)	Iron	0.1	.03	0.1	mg/L	1125191451cs
SM22 3111B (99)	Manganese	.04	.01	0.1	mg/L	1125191558cs
SM22 3111D (99)	Aluminum	.1	.03	0.1	mg/L	1126191138cs
SM22 4500Cl-B(97)	Chloride		3.0	20.5	mg Cl-/L	1127191420cs
SM 3113BCd(04) OE	Cadmium	.001	.0004	MD<0.0004	mg/L	1120191603cs
SM 3113BCr (04) OE	Chromium	.01	.001	MD<0.001	mg/L	1119191622cs
SM 3113BSe(04) OE	Selenium	.01	.003	MD<0.003	mg/L	1121191549cs
SM22 3111BZn(99)	Zinc	.25	.01	MD <0.01	mg/L	1125191650cs
SM 3113BPb(04) OE	Lead	.005	.0005	MD<0.0005	mg/L	1122191739cs
SM22 3111BCu(99)	Copper	.05	.01	MD <0.01	mg/L	1125191054cs

*QL = Quantitation Limit

*MDL = Method Detection Level

MD-Indicates less than method detection limit. Page 1 of 1



Debra A. Harris

Laboratory Director

H&H WATER CONTROLS, INC.

H&H WATER CONTROLS INC.
UTE 88 SOUTH, CARMICHAELS, PA 15320
724.966.2278 Fax: 724.966.7924
hnhwc@windstream.net

CHAIN OF CUSTODY /
SAMPLE ANALYSIS REQUEST
(REVISION 1-18-18)

Client Name

East Dunbar Water Authority

Billing Address

P.O. Box 241 2790 S. EIGHTY EIGHT RD

City

Telephone No.

Contact Person

Project Name

Sampled By:

ED RESIDENTIAL TESTING - 189 Mt. Joy Rd.

Sample Description / Location

1 OUTSIDE POOL HOSE RIB

2 189 Mt. Joy Rd.

3

4

5

6

7

8

9

Relinquished By / Company Name

Date

Time

Received By / Company Name

Date

Time

PH:

Temp:

DO:

Cl₂:

FLOW:

OTHER:

Turn Around Time:

☐ Normal

☐ Rush

☐ Purchase Order No.

Send Results By:

☐ Mail

☐ Fax

☐ E-Mail

C=Composite or G=Grab

Matrix (see key)

TSS-TDS-chloride

Fe-Mn-Al-Pb-Cu-Zn-Cd-Cr

Selenium

Lab Containers # (Lab Use Only)

Analysis Requested

Sample Matrix Key

DW = Drinking Water

WW = Wastewater

CW = Groundwater

SW = Stormwater

SL = Sludge

W = Well

SP = Spring

ST = Stream

PD = Pond

PL = Pool

OL = Other

Comments:

Login Number:

16603

Lab Containers # (Lab Use Only)

1 2 3

Analysis Requested

Sample Matrix Key

DW = Drinking Water

WW = Wastewater

CW = Groundwater

SW = Stormwater

SL = Sludge

W = Well

SP = Spring

ST = Stream

PD = Pond

PL = Pool

OL = Other

Comments:

Condition (Lab Use Only)

Temp: 5.8 °C

PH

Checked?

Preserved

At Lab?

of Bottles:

1 - 3.3446

Received By:

Preservation

Comments:

Page 102 of 147

H&H WATER CONTROLS INC.
UTE 88 SOUTH, CARMICHAELS, PA 15320
724.966.2278 Fax: 724.966.7924
hnhwc@windstream.net

CHAIN OF CUSTODY /
SAMPLE ANALYSIS REQUEST
(REVISION 1-18-18)

Customer Name

East Oakland Water Authority

Billing Address

1601 Oak 241 2790 S. Eighth Street Rd
City Dilliner

Telephone No.

724-943-3713

Fax No.

724-943-4195

Contact Person

Sam Correll

E-Mail

sc@hohshamale.com

Project Name

EO Residential Testing - 584 Taylortown Rd

Sampled By: JAMES HANSHAMAN

Turn Around Time:

☐ Normal
(10-12 Business Days)

☐ Rush
(Surcharges May Apply)

Purchase Order No.

Send Results By:

☐ Mail

☐ Fax

☐ E-Mail

Sample Description / Location

1 EXTERIOR FROST FREE HYDRANT IN YARD

Collection Date

Collection Time

11/12/19

3:15 PM

C=Composite or G=Grab

Matrix (see key)

TSS-TDS-Chloride

Fe-Mn-Al-Pb-Cu-Zn-Cd-Cr

Selenium

Login Number:

16463

Lab Containers # (Lab Use Only)

4 5 6

Analysis Requested

Sample Matrix Key

DW = Drinking Water

WW = Wastewater

GW = Groundwater

SW = Stormwater

SL = Sludge

W = Well

SP = Spring

ST = Stream

PD = Pond

PL = Pool

OL = Other

Comments:

Preservative Used: 1 = HCl 2 = HNO₃ 3 = H₂SO₄

Relinquished By / Company Name

Date

Time

Received By / Company Name

Date

Time

Condition (Lab Use Only)

Receipt Information

Performed By:

Temp: 5.8 °C

of Bottles: 3

Checked?

Preserved

Comments:

FIELD TESTS:

pH:

Temp:

DO:

Cl₂:

FLOW:

OTHER:

East Dunkard Water Authority Residential Water Testing Results Summary			Address	Water Plant Entry Point	121 Rocky Run Road	Davistown Road	1294 Garards Fort Road	237 Old Dairy Road
			Customer					
			Sampling Location	Tap off Main Line to Griffin Tank	Garage Hose Bib	Service Pit Between Yoney and Hitt	Outdoor Hose Bib	Outside Hose Bib
			Date Sampled	08/07/20	08/07/20	08/07/20	08/07/20	08/19/20
Testing Parameter	Testing Limits		Maximum Contaminant Level (MCLs)	Location 1	Location 2	Location 3	Location 4	Location 5
	QL	MDL						
Primary Contaminants: Primary contaminants are ones that present a risk to human health.								
Cadmium	0.001	0.0004	0.005 mg/L	<MD	<MD	<MD	<MD	<MD
Chromium	0.01	0.001	0.1 mg/L	<MD	<MD	<MD	<MD	<MD
Selenium	0.01	0.003	0.05 mg/L	<MD	<MD	<MD	<MD	<MD
Zinc	0.25	0.01	5.0 mg/L	<MD	<MD	<MD	<MD	<MD
Lead	0.005	0.005	0.005 mg/L	<MD	<MD	<MD	<MD	<MD
Copper	0.05	0.01	1.0 mg/L	<MD	<MD	<MD	<MD	P 0.01
Secondary Contaminants: although not usually health threatening, may be displeasing to consumers.								
Total Suspended Solids	25.0	5.0		<MD	<MD	<MD	<MD	<MD
Total Dissolved Solids	25.0	10.0	500 mg/L	257.0	257.0	220.0	218.0	145.0
Iron	0.1	0.03	0.3 mg/L	P 0.05	0.1	P 0.04	0.1	<MD
Manganese	0.04	0.01	0.05 mg/L	<MD	P 0.01	<MD	<MD	<MD
Aluminum	0.1	0.03	0.2 mg/L	0.1	P0.06	P0.07	0.1	P0.09
Chloride		3.0	250 mg Cl/L	17.5	17.5	12.5	21.0	15.0
Notes:								
	mg/L	milligrams per liter or parts per million						
	µg/L	micrograms per liter or parts per billion						
	QL	Quantitation Limit, the						
	MDL	Method Detection Level, the smallest ammount detectable by the given method						
	P	Estimated value between method detection and practical quantitation limit.						
	<MD	Indicates less than method detection limit						
Cell Colors								
Below Limits								
Equal to Limit								
Above Limit								

H&H WATER CONTROLS, INC.

565 Route 88 South
Carmichaels, PA 15320

Telephone: (724) 966-2278 Fax: (724) 966-7924
PA Lab # 30-00287

Ship To East Dunkard Water Authority
2790 S. EightyEight Road
P.O. Box 241
Dilliner, PA 15327

Report No.**360046**

Report Date: 09/03/2020
H&H Sample No: 20-18658.1-2-3
P.O. Number:
Collection Date: 08/07/2020
Collection Time: 10:40
Collected By: SC
Received Date: 08/07/2020
Sample Id: Water Plant Entry Point

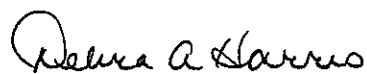
LABORATORY**ANALYSIS****REPORT**

Method No.	Parameter	QL*	MDL*	Results	Units	Date / Time / By
SM22 2540D(97) ^4	Total Suspended Solids	25.0	5.0	MD <5.0	mg/L	0810201510et
SM22 2540C (97)	Total Dissolved Solids	25.0	10.0	257.0	mg/L	0807201700ns
SM22 3111B Fe (99)	Iron	0.075	0.03	P 0.05	mg/L	0819201329cs
SM22 3111B Mn (99)	Manganese	0.03	0.01	MD <0.01	mg/L	0819201441cs
SM22 3111D Al (99)	Aluminum	0.1	0.03	0.1	mg/L	0820201020cs
SM22 4500Cl-B(97)	Chloride		3.0	17.5	mg Cl-/L	0824201325sc
SM22 3111B Cu (99)	Copper	0.03	0.01	MD <0.01	mg/L	0821201355cs
SM21 3113BPb(04)OE	Lead	0.003	0.0005	MD<0.0005	mg/L	0818201620cs
SM22 3111B Zn (99)	Zinc	0.08	0.01	MD <0.01	mg/L	0821201201cs
SM21 3113BSe(04)OE	Selenium	0.008	0.003	MD <0.003	mg/L	0902201649cs
SM21 3113BCd(04)OE	Cadmium	0.001	0.0004	MD<0.0004	mg/L	0908201202cs
SM21 3113BCr(04)OE	Chromium	0.008	0.001	MD <0.001	mg/L	0903201706cs

*QL = Quantitation Limit

*MDL = Method Detection Level

^# after the Method No is for internal lab use only. Page 1 of 2



Debra A. Harris

Laboratory Director

H&H WATER CONTROLS, INC.

Revision 5
June 1, 2020

H&H WATER CONTROLS INC.
565 Route 88 South
Carmichaels, PA 15320
724-966-2278

Report Data Qualifiers

T-Sample did not meet thermal preservation requirement.

C-Sample did not meet chemical preservation requirement.

R-Received and analyzed outside hold time.

A-Sample analyzed outside hold time.

B-CBOD did not meet depletion criteria.

B-BOD did not meet depletion criteria.

P-Indicates an estimated value between Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL).

D-Indicates Sample Dilution necessary.

SD-Sample Duplicate (RPD) percent recovery is outside acceptable limit.

MS-Matrix Spike percent recovery is outside acceptable limit.

ND-Indicates Analyte was Not Detected (ND)

M-Indicates over the Maximum Contaminant Level (MCL)

MD-Indicates less than Method Detection Limit

J-Indicates less than Quantitation Limit.

(>)Indicates highest sample dilution was greater than 200.

E-Estimated

LA-Indicates Alkalinity result is less than 20.

MR-Sample does not meet Method Requirements.

H&H WATER CONTROLS, INC.

565 Route 88 South
Carmichaels, PA 15320

Telephone: (724) 966-2278 Fax: (724) 966-7924
PA Lab # 30-00287

Report No.**360047**

Report Date: 09/03/2020

H&H Sample No: 20-18658.4-5-6

P.O. Number:

Collection Date: 08/07/2020

Collection Time: 10:40

Collected By: SC

Received Date: 08/07/2020

Sample Id: 121 Rocky Run Road

Ship To East Dunkard Water Authority
2790 S. EightyEight Road
P.O. Box 241
Dilliner, PA 15327

LABORATORY**ANALYSIS****REPORT**

Method No.	Parameter	QL*	MDL*	Results	Units	Date / Time / By
SM22 2540D(97) ^4	Total Suspended Solids	25.0	5.0	MD <5.0	mg/L	0810201510et
SM22 2540C (97)	Total Dissolved Solids	25.0	10.0	257.0	mg/L	0807201700ns
SM22 3111B Fe (99)	Iron	0.075	0.03	0.1	mg/L	0819201329cs
SM22 3111B Mn (99)	Manganese	0.03	0.01	P 0.01	mg/L	0819201441cs
SM22 3111D Al (99)	Aluminum	0.1	0.03	P 0.06	mg/L	0820201020cs
SM22 4500Cl-B(97)	Chloride		3.0	17.5	mg Cl-/L	0824201325sc
SM22 3111B Cu (99)	Copper	0.03	0.01	MD <0.01	mg/L	0821201355cs
SM21 3113BPb(04)OE	Lead	0.003	0.0005	MD<0.0005	mg/L	0818201620cs
SM22 3111B Zn (99)	Zinc	0.08	0.01	MD <0.01	mg/L	0821201201cs
SM21 3113BSe(04)OE	Selenium	0.008	0.003	MD <0.003	mg/L	0902201649cs
SM21 3113BCd(04)OE	Cadmium	0.001	0.0004	MD<0.0004	mg/L	0908201202cs
SM21 3113BCr(04)OE	Chromium	0.008	0.001	MD <0.001	mg/L	0903201706cs

*QL = Quantitation Limit

*MDL = Method Detection Level

^# after the Method No is for internal lab use only. Page 1 of 2



Debra A. Harris

Laboratory Director

H&H WATER CONTROLS, INC.

Revision 5
June 1, 2020

H&H WATER CONTROLS INC.
565 Route 88 South
Carmichaels, PA 15320
724-966-2278

Report Data Qualifiers

T-Sample did not meet thermal preservation requirement.

C-Sample did not meet chemical preservation requirement.

R-Received and analyzed outside hold time.

A-Sample analyzed outside hold time.

B-CBOD did not meet depletion criteria.

B-BOD did not meet depletion criteria.

P-Indicates an estimated value between Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL).

D-Indicates Sample Dilution necessary.

SD-Sample Duplicate (RPD) percent recovery is outside acceptable limit.

MS-Matrix Spike percent recovery is outside acceptable limit.

ND-Indicates Analyte was Not Detected (ND)

M-Indicates over the Maximum Contaminant Level (MCL)

MD-Indicates less than Method Detection Limit

J-Indicates less than Quantitation Limit.

(>)Indicates highest sample dilution was greater than 200.

E-Estimated

LA-Indicates Alkalinity result is less than 20.

MR-Sample does not meet Method Requirements.

H&H WATER CONTROLS, INC.

565 Route 88 South
Carmichaels, PA 15320

Telephone: (724) 966-2278 Fax: (724) 966-7924
PA Lab # 30-00287

Report No.**360048**

Report Date: 09/03/2020

H&H Sample No: 20-18658.7-8-9

P.O. Number:

Collection Date: 08/07/2020

Collection Time: 11:15

Collected By: SC

Received Date: 08/07/1920

Sample Id: Yoney Hitt Service Pit

Ship To East Dunkard Water Authority
2790 S. EightyEight Road
P.O. Box 241
Dilliner, PA 15327

LABORATORY**ANALYSIS****REPORT**

Method No.	Parameter	QL*	MDL*	Results	Units	Date / Time / By
SM22 2540D(97) ^4	Total Suspended Solids	25.0	5.0	MD <5.0	mg/L	0810201510et
SM22 2540C (97)	Total Dissolved Solids	25.0	10.0	220.0	mg/L	0807201700ns
SM22 3111B Fe (99)	Iron	0.075	0.03	P 0.04	mg/L	0819201329cs
SM22 3111B Mn (99)	Manganese	0.03	0.01	MD <0.01	mg/L	0819201441cs
SM22 3111D Al (99)	Aluminum	0.1	0.03	P 0.07	mg/L	0820201020cs
SM22 4500Cl-B(97)	Chloride		3.0	12.5	mg Cl-/L	0824201325sc
SM22 3111B Cu (99)	Copper	0.03	0.01	MD <0.01	mg/L	0821201355cs
SM21 3113BPb(04)OE	Lead	0.003	0.0005	MD<0.0005	mg/L	0818201620cs
SM22 3111B Zn (99)	Zinc	0.08	0.01	MD <0.01	mg/L	0821201201cs
SM21 3113BSe(04)OE	Selenium	0.008	0.003	MD <0.003	mg/L	0902201649cs
SM21 3113BCd(04)OE	Cadmium	0.001	0.0004	MD<0.0004	mg/L	0908201202cs
SM21 3113BCr(04)OE	Chromium	0.008	0.001	MD <0.001	mg/L	0903201706cs

*QL = Quantitation Limit

*MDL = Method Detection Level

^# after the Method No is for internal lab use only. Page 1 of 2



Debra A. Harris

Laboratory Director

H&H WATER CONTROLS, INC.

Revision 5
June 1, 2020

H&H WATER CONTROLS INC.
565 Route 88 South
Carmichaels, PA 15320
724-966-2278

Report Data Qualifiers

T-Sample did not meet thermal preservation requirement.

C-Sample did not meet chemical preservation requirement.

R-Received and analyzed outside hold time.

A-Sample analyzed outside hold time.

B-CBOD did not meet depletion criteria.

B-BOD did not meet depletion criteria.

P-Indicates an estimated value between Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL).

D-Indicates Sample Dilution necessary.

SD-Sample Duplicate (RPD) percent recovery is outside acceptable limit.

MS-Matrix Spike percent recovery is outside acceptable limit.

ND-Indicates Analyte was Not Detected (ND)

M-Indicates over the Maximum Contaminant Level (MCL)

MD-Indicates less than Method Detection Limit

J-Indicates less than Quantitation Limit.

(>)Indicates highest sample dilution was greater than 200.

E-Estimated

LA-Indicates Alkalinity result is less than 20.

MR-Sample does not meet Method Requirements.

H&H WATER CONTROLS INC.
565 ROUTE 88 SOUTH, CARMICHAELS, PA 15320
724.966.2278 Fax: 724.966.7924
hnhwc@windstream.net

CHAIN OF CUSTODY /
SAMPLE ANALYSIS REQUEST
(REVISION 1-18-18)

Customer Name

East-Quakertown Water Authority

Billing Address

PO Box 241 27905, Elyria, OH 44021

City

D. L. Miller

State

PA

Zip Code

15327

Telephone No.

724-943-3713

Fax No.

724-943-4195

Contact Person

Sam Carroll

E-Mail

sc@charshome.net

Project Name

130th Water Testing

Sampled By:

Samuel N. Carroll

Sample Description / Location

1 Water Plant Entry Point

Collection Date

Aug 7 2020

Collection Time

10:40 AM

G

DW

1

1

1

1

1

1

1

1

1

1

1

2 121 Rocky Run Road

Collection Date

Aug 7, 2020

Collection Time

10:40 AM

G

DW

1

1

1

1

1

1

1

1

1

1

1

3 Honey Hill Service Pit

Collection Date

Aug 7, 2020

Collection Time

10:15 AM

G

DW

1

1

1

1

1

1

1

1

1

1

1

4

Collection Date

Aug 7, 2020

Collection Time

10:15 AM

G

DW

1

1

1

1

1

1

1

1

1

1

1

5

Collection Date

Aug 7, 2020

Collection Time

10:15 AM

G

DW

1

1

1

1

1

1

1

1

1

1

1

6

Collection Date

Aug 7, 2020

Collection Time

10:15 AM

G

DW

1

1

1

1

1

1

1

1

1

1

1

7

Collection Date

Aug 7, 2020

Collection Time

10:15 AM

G

DW

1

1

1

1

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1

1

1

1

1

1

8

Collection Date

Aug 7, 2020

Collection Time

10:15 AM

G

DW

1

1

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1

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1

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1

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9

Collection Date

Aug 7, 2020

Collection Time

10:15 AM

G

DW

1

1

1

1

1

1

1

1

1

1

1

Preservative Used: 1 = HCl 2 = HNO₃ 3 = H₂SO₄

Relinquished By / Company Name Date Time Received By / Company Name Date Time

Condition (Lab Use Only)

Receipt Information

1 Sam M Carroll

8-7-20

1315

2

CD 2 Hillwater

8-7-20

1315

3

4

4

4

4

4

4

4

4

4

4

4

4

2

8-7-20

1315

2

CD 2 Hillwater

8-7-20

1315

3

4

4

4

4

4

4

4

4

4

4

4

4

FIELD TESTS:

pH:

Temp:

DO:

Cl₂:

FLOW:

OTHER:

Temp: 17.3 °C

of Bottles:

pg 1 - 9 bottles

Temp: 17.3 °C

of Bottles:

pg 1 - 9 bottles

Temp: 17.3 °C

of Bottles:

pg 1 - 9 bottles

Temp: 17.3 °C

of Bottles:

pg 1 - 9 bottles

Temp: 17.3 °C

of Bottles:

pg 1 - 9 bottles

Temp: 17.3 °C

PH Checked?

Temp Checked?

DO Checked?

Cl₂ Checked?

Flow Checked?

Other Checked?

Temp Checked?

of Bottles Checked?

pg 1 - 9 bottles Checked?

Temp Checked?

of Bottles Checked?

pg 1 - 9 bottles Checked?

Temp Checked?

of Bottles Checked?

pg 1 - 9 bottles Checked?

Temp Checked?

of Bottles Checked?

pg 1 - 9 bottles Checked?

Temp Checked?

of Bottles Checked?

pg 1 - 9 bottles Checked?

Temp Checked?

of Bottles Checked?

Login Number:

18658

Lab Containers # (Lab Use Only)

1 2 3 4 5 6 7 8 9

Analysis Requested

TSS-TDS-Chloride

Fe-Mn-Al-Pb-Cu-Zn-Cd-Cr

Selenium

TSS-TDS-Chloride

Fe-Mn-Al-Pb-Cu-Zn-Cd-Cr

Selenium

TSS-TDS-Chloride

Fe-Mn-Al-Pb-Cu-Zn-Cd-Cr

Selenium

Page 1 of 2

Total Bottles (12)

Sample Matrix Key

DW = Drinking Water

WW = Wastewater

GW = Groundwater

SW = Stormwater

SL = Sludge

W = Well

SP = Spring

ST = Stream

PD = Pond

PL = Pool

OL = Other

Comments:

H&H WATER CONTROLS, INC.

565 Route 88 South
Carmichaels, PA 15320

Telephone: (724) 966-2278 Fax: (724) 966-7924
PA Lab # 30-00287

Ship To East Dunkard Water Authority
2790 S. EightyEight Road
P.O. Box 241
Dilliner, PA 15327

Report No.**360049**

Report Date: 09/03/2020

H&H Sample No: 20-18658.10-12

P.O. Number:

Collection Date: 08/07/2020

Collection Time: 11:41

Collected By: SC

Received Date: 08/07/2020

Sample Id: 1294 Garards Fort Roac

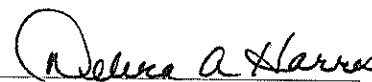
LABORATORY**ANALYSIS****REPORT**

Method No.	Parameter	QL*	MDL*	Results	Units	Date / Time / By
SM22 2540D(97) ^4	Total Suspended Solids	25.0	5.0	MD <5.0	mg/L	0810201510et
SM22 2540C (97)	Total Dissolved Solids	25.0	10.0	218.0	mg/L	0807201700ns
SM22 3111B Fe (99)	Iron	0.075	0.03	0.1	mg/L	0819201329cs
SM22 3111B Mn (99)	Manganese	0.03	0.01	MD <0.01	mg/L	0819201441cs
SM22 3111D Al (99)	Aluminum	0.1	0.03	0.1	mg/L	0820201020cs
SM22 4500Cl-B(97)	Chloride		3.0	21.0	mg Cl-/L	0824201325sc
SM22 3111B Cu (99)	Copper	0.03	0.01	MD <0.01	mg/L	0821201355cs
SM21 3113BPb(04)OE	Lead	0.003	0.0005	MD<0.0005	mg/L	0818201620cs
SM22 3111B Zn (99)	Zinc	0.08	0.01	MD <0.01	mg/L	0821201201cs
SM21 3113BSe(04)OE	Selenium	0.008	0.003	MD <0.003	mg/L	0902201649cs
SM21 3113BCd(04)OE	Cadmium	0.001	0.0004	MD<0.0004	mg/L	0908201202cs
SM21 3113BCr(04)OE	Chromium	0.008	0.001	MD <0.001	mg/L	0903201706cs

*QL = Quantitation Limit

*MDL = Method Detection Level

^# after the Method No is for internal lab use only. MD-Indicates less than method detection limit. Page 1 of 1



Debra A. Harris

Laboratory Director

H&H WATER CONTROLS, INC.

H&H WATER CONTROLS INC.
565 ROUTE 88 SOUTH, CARMICHAELS, PA 15320
724.966.2278 Fax: 724.966.7924
hnhwc@windstream.net

CHAIN OF CUSTODY /
SAMPLE ANALYSIS REQUEST
(REVISION 1-18-18)

Login Number: 18658
Lab Containers # (Lab Use Only)
Page 2 of 2

Customer Name: East Dunkard Water Authority

Billing Address: P.O. Box 241 27905, Eighty Eight Road

City: Dilliner State: PA Zip Code: 15301

Telephone No.: 724-943-3713 Fax No.: 724-943-4195

Contact Person: Sam Carroll E-Mail: sc@charshma11c.com

Project Name: EDWA Water Testing

Sampled By: Samuel N Carroll

Turn Around Time:
☐ Normal (10-12 Business Days)
☐ Rush (Surcharges May Apply)

Purchase Order No.

Send Results By:
☐ Mail
☐ Fax
☒ E-Mail

C=Composite or G=Grab

Matrix (see key)

TSS-TDS-Chloride

Fe-Mn-Al-Pb-Cu-Zn-Cd-Cr

Selenium

Analysis Requested

Sample Matrix Key

DW = Drinking Water
WW = Wastewater
GW = Groundwater
SW = Stormwater
SL = Sludge
W = Well
SP = Spring
ST = Stream
PD = Pond
PL = Pool
OL = Other

Comments:

Relinquished By / Company Name

Date

Time

Received By / Company Name

Date

Condition (Lab Use Only)

Temp: 17.3 °C # of Bottles: 3

iced: Yes pH Checked? Yes

Preservation Comments:

Performed By: 9

FIELD TESTS: pH: Temp: DO: Cl₂: FLOW: OTHER:

H&H WATER CONTROLS, INC.

565 Route 88 South
Carmichaels, PA 15320

Telephone: (724) 966-2278 Fax: (724) 966-7924
PA Lab # 30-00287

Ship To East Dunkard Water Authority
2790 S. EightyEight Road
P.O. Box 241
Dilliner, PA 15327

Report No.**360050**

Report Date: 09/03/2020

H&H Sample No: 20-18753.1-2-3

P.O. Number:

Collection Date: 08/19/2020

Collection Time: 10:25

Collected By: SC

Received Date: 08/19/2020

Sample Id: 237 Old Dairy Road

LABORATORY**ANALYSIS****REPORT**

Method No.	Parameter	QL*	MDL*	Results	Units	Date / Time / By
SM22 2540D(97) ^4	Total Suspended Solids	25.0	5.0	MD <5.0	mg/L	0820201500et
SM22 2540C (97)	Total Dissolved Solids	25.0	10.0	142.0	mg/L	0821201540ns
SM22 3111B Fe (99)	Iron	0.075	0.03	MD <0.03	mg/L	0831201150cs
SM22 3111B Mn (99)	Manganese	0.03	0.01	MD <0.01	mg/L	0831201422cs
SM22 3111D Al (99)	Aluminum	0.1	0.03	P 0.09	mg/L	0831201642cs
SM22 4500Cl-B(97)	Chloride		3.0	15.0	mg Cl-/L	0824201325sc
SM22 3111B Cu (99)	Copper	0.03	0.01	P 0.01	mg/L	0821201355cs
SM21 3113BPb(04)OE	Lead	0.003	0.0005	MD<0.0005	mg/L	0825201044cs
SM22 3111B Zn (99)	Zinc	0.08	0.01	MD <0.01	mg/L	0821201201cs
SM21 3113BSe(04)OE	Selenium	0.008	0.003	MD 0.003	mg/L	0902201649cs
SM21 3113BCd(04)OE	Cadmium	0.001	0.0004	MD<0.0004	mg/L	0908201202cs
SM21 3113BCd(04)OE	Cadmium	0.001	0.0004	MD<0.0004	mg/L	0908201202cs
SM21 3113BCr(04)OE	Chromium	0.008	0.001	MD <0.001	mg/L	0903201706cs

*QL = Quantitation Limit

*MDL = Method Detection Level

^# after the Method No is for internal lab use only. Page 1 of 2



Debra A. Harris

Laboratory Director

H&H WATER CONTROLS, INC.

Revision 5
June 1, 2020

H&H WATER CONTROLS INC.
565 Route 88 South
Carmichaels, PA 15320
724-966-2278

Report Data Qualifiers

- T-Sample did not meet thermal preservation requirement.
- C-Sample did not meet chemical preservation requirement.
- R-Received and analyzed outside hold time.
- A-Sample analyzed outside hold time.
- B-CBOD did not meet depletion criteria.
- B-BOD did not meet depletion criteria.
- P-Indicates an estimated value between Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL).
- D-Indicates Sample Dilution necessary.
- SD-Sample Duplicate (RPD) percent recovery is outside acceptable limit.
- MS-Matrix Spike percent recovery is outside acceptable limit.
- ND-Indicates Analyte was Not Detected (ND)
- M-Indicates over the Maximum Contaminant Level (MCL)
- MD-Indicates less than Method Detection Limit
- J-Indicates less than Quantitation Limit.
- (>)Indicates highest sample dilution was greater than 200.
- E-Estimated
- LA-Indicates Alkalinity result is less than 20.
- MR-Sample does not meet Method Requirements.

H&H WATER CONTROLS INC.
565 ROUTE 88 SOUTH, CARMICHAELS, PA 15320
724.966.2278 Fax: 724.966.7924
hnhwc@windstream.net

CHAIN OF CUSTODY /
SAMPLE ANALYSIS REQUEST
(REVISION 6-1-20)

Login Number:

18753

Page 1 of 1

Lab Containers # (Lab Use Only)

Analysis Requested

Sample Matrix Key

DW = Drinking Water

WW = Wastewater

GW = Groundwater

SW = Stormwater

SL = Sludge

W = Well

SP = Spring

ST = Stream

PD = Pond

PL = Pool

OL = Other

Container Key

P = Plastic

G = Glass

Comments:

Turn Around Time:

☒ Normal

(10-12 Business Days)

☐ Rush

(Surcharges May Apply)

Purchase Order No.

Send Results By:

☐ Mail

☐ Fax

☒ E-Mail

C=Composite or G=Grab

Matrix (see key)

Container Type (see key)

TSS-TDS-Chloride

Fe-Mn-Al-Pb-Cu-Zn-Cd-Cr

Selenium

Analysis Requested

Analysis Requested

Analysis Requested

Analysis Requested

Analysis Requested

Analysis Requested

Analysis Requested

Analysis Requested

Analysis Requested

Analysis Requested

Analysis Requested

Analysis Requested

Analysis Requested

Analysis Requested

Analysis Requested

Analysis Requested

Analysis Requested

Analysis Requested

Analysis Requested

Container Size/Volume (in mL)

Preservative Used: 1 = HCl 2 = HNO₃ 3 = H₂SO₄ 4 = Na₂S₂O₃

Relinquished By / Company Name

Date

Time

Received By / Company Name

Date

Time

Condition (Lab Use Only)

Samuel M Carroll

8/19/2006

2

8/19/2006

11:00

Temp: 15.2 °C

of Bottles: 3

Preservation Comments:

3

4

6

6

6

6

6

6

6

6

6

6

6

6

6

6

6

6

6

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6

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6

6

6

6

FIELD TESTS:

pH:

Temp:

DO:

Cl₂:

FLOW:

OTHER:

OTHER:

OTHER:

OTHER:

OTHER:

OTHER:

OTHER:

OTHER:

OTHER:

OTHER:

**Appendix F Hach Test Kit Product Specifications
and Data Log Sheet**



East Dunkard Water Authority Iron & Manganese Testing Results			If finished water Mn ≥ 0.025 mg/L or Fe ≥ 0.15 mg/L Collect Sample for H&H to Test				
DEP Daytime: DEP After hrs: HCEG:			If finished water exceeds either MCL, Notify DEP & HCEG within 1 hour.				
Month:			If finished Mn ≥ 0.3 mg/L this is a health emergency! Immediately issue Tier 1 DO NOT CONSUME Public Notification and Notify DEP				
Day	Manganese (Mn) MCL = 0.05 mg/L			Iron (Fe) MCL = 0.3mg/L			Initials
	Raw	Settled	Finished	Raw	Settled	Finished	
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
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Iron, Ferrous, Test Kit IR-18C (2667200)

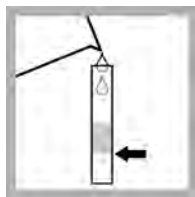
DOC326.97.00063

Test preparation

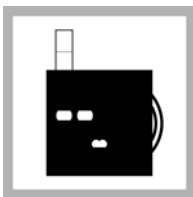
CAUTION: ⚠ *Review the Safety Data Sheets (MSDS/SDS) for the chemicals that are used. Use the recommended personal protective equipment.*

- Analyze samples immediately after collection.
- Put the color disc on the center pin in the color comparator box (numbers to the front).
- Use the indoor light color disc when the light source is fluorescent light. Use the outdoor light color disc when the light source is sunlight.
- Rinse the tubes with sample before the test. Rinse the tubes with deionized water after the test.
- If the color match is between two segments, use the value that is in the middle of the two segments.
- If the color disc becomes wet internally, pull apart the flat plastic sides to open the color disc. Remove the thin inner disc. Dry all parts with a soft cloth. Assemble when fully dry.
- Undissolved reagent does not have an effect on test accuracy.
- To verify the test accuracy, use a standard solution as the sample.
- This test kit measures ferrous iron. To determine ferric iron (Fe^{3+}), subtract the ferrous iron result from a total iron test.

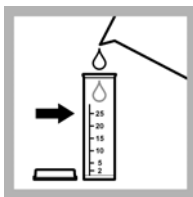
Test procedure—Iron, ferrous (0–7 mg/L Fe^{2+})



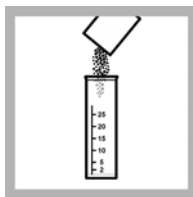
1. Fill a tube to the first line (5 mL) with sample.



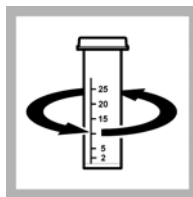
2. Put the tube into the left opening of the color comparator box.



3. Fill the vial to the 25-mL mark with sample.



4. Add one Ferrous Iron Reagent Powder Pillow to the vial.



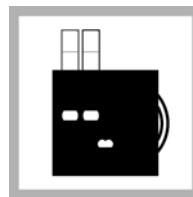
5. Swirl to mix. A orange color develops if ferrous iron is in the sample.



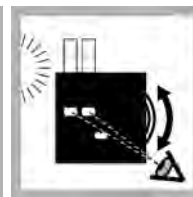
6. Wait 3 minutes.



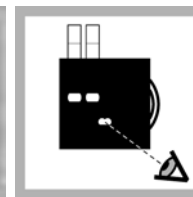
7. Fill a second tube to the first line (5 mL) with the prepared sample.



8. Put the second tube into the color comparator box.



9. Hold the color comparator box in front of a light source. Turn the color disc to find the color match.



10. Read the result in mg/L in the scale window.

Replacement items

TUS A-022_1_Attachment

Description	Unit	Item no.
Ferrous Iron Reagent Powder Pillows	100/pkg	103769
Color disc, iron, indoor light, 0–7 mg/L	each	9261000
Color disc, iron, outdoor light, 0–7 mg/L	each	9263700
Color comparator box	each	173200
Plastic viewing tubes, 18 mm, with caps	4/pkg	4660004
Vial with 2, 5, 10, 15, 20 and 25-mL marks	each	219300

Optional items

Description	Unit	Item no.
Caps for plastic viewing tubes (4660004)	4/pkg	4660014
Glass viewing tubes, glass, 18 mm	6/pkg	173006
Stoppers for 18-mm glass tubes and AccuVac Ampuls	6/pkg	173106
Water, deionized	500 mL	27249





Manganese Test Kit MN-5 (146700)

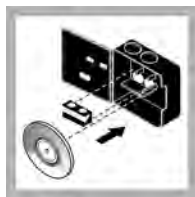
DOC326.97.00065

Test preparation

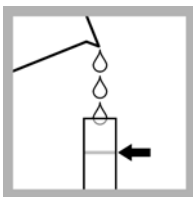
CAUTION: ⚠ Review the Safety Data Sheets (MSDS/SDS) for the chemicals that are used. Use the recommended personal protective equipment.

- Put the color disc on the center pin in the color comparator box (numbers to the front).
- Use sunlight or a lamp as a light source to find the color match with the color comparator box.
- Rinse the tubes with sample before the test. Rinse the tubes with deionized water after the test.
- If the color match is between two segments, use the value that is in the middle of the two segments.
- If the color disc becomes wet internally, pull apart the flat plastic sides to open the color disc. Remove the thin inner disc. Dry all parts with a soft cloth. Assemble when fully dry.
- Undissolved reagent does not have an effect on test accuracy.
- To verify the test accuracy, use a standard solution as the sample.
- The long-path adapter for the low range test shows the color in the tubes from top to bottom. Make sure the light source is above the tubes during the color match.
- To determine total manganese, digest the sample with heat and acid. Refer to the *Water Analysis Guide* for more information.

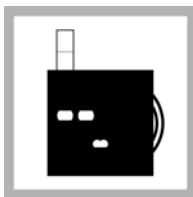
Test procedure—Manganese (0–3 mg/L Mn)



1. Install the long-path adapter in the color comparator box.



2. Fill a tube to the top line with sample.



3. Put the tube into the left opening of the color comparator box.



4. Fill a bottle to the shoulder with sample.



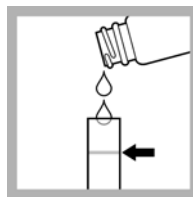
5. Add one Citrate Buffer Powder Pillow for Manganese. Swirl to mix.



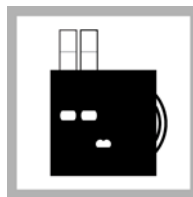
6. Add one Sodium Periodate Powder Pillow for Manganese. Swirl to mix.



7. Wait 2 minutes. A pink color develops if manganese is in the sample. Read the result within 8 minutes.



8. Fill a second tube to the top line with the prepared sample.



9. Put the second tube into the color comparator box.



10. Hold the color comparator box below a light source. Turn the color disc to find the color match.



11. Read the result in mg/L in the scale window.

Replacement items

TUS A-022_1_Attachment

Description	Unit	Item no.
Citrate Buffer Powder Pillows for Manganese, 25 mL	100/pkg	98399
Sodium Periodate Powder Pillows for Manganese, 25 mL	100/pkg	98499
Bottle, square, 29 mL	6/pkg	43906
Color comparator box	each	173200
Color disc, manganese, 0–3 mg/L	each	9262700
Glass viewing tubes, glass, 18 mm	6/pkg	173006
Long-path adapter	each	2412200
Stoppers for 18-mm glass tubes and AccuVac Ampuls	6/pkg	173106



Appendix G Public Announcement of Availability of Water Testing



"If you have an issue with the clarity or quality of your water:

- please call Harshman CE Group 724-503-4125 ASAP*
- with your permission they will come and sample your water for lab testing*
- they will also notify the Water Authority staff*
- the Water Authority staff will come out and flush the lines to clean the water*

East Dunkard Water Authority continues to take proactive steps to ensure that all customers have safe clean water. In recent years we have invested over \$100,000 in upgrading our system to resolve known issues. These improvements have reduced the number of problems; however, more work remains.

We have two planned investment projects for upgrades to the system, and we are pursuing two State funded grants with the help of our local State Representatives. Securing grant funding will help to keep rates as low as possible for our customers.

When a disturbance in the water system, like a line breaks or the hydrants are used for a fire, temporary issues with water quality are expected nearby. When an issue occurs, the Water Authority restores water quality by flushing the lines in that area."

Appendix H Tank Inspection Quotes





Fax – (406) 651-0120

Proposal Number

54494

Please reference the Proposal Number above on all Purchase Orders issued.

Scope of Work - In-Service Clean & Inspect

This Potable Water System Proposal is made this date, by and between **East Dunkard Water Association** of the state of **Pennsylvania**, (hereinafter "Client") and **Liquid Engineering Corporation, of Billings, MT**, (hereinafter "LEC"). LEC will provide all labor, specialty equipment and insurance to evaluate your facilities.

In-Service Inspection

Interior and exterior inspections will review structural, sanitary, safety, security and any installed coating conditions. Reporting will be provided based on water tank inspection criteria, referencing applicable OSHA, EPA, AWWA, TCEQ and NFPA requirements. Minimum items examined will include ladders, shell, roof, vent, manways, welds, seams, foundation, anchors, safety systems, hatches, external overflow and plumbing.

Underwater interior video documentation will be completed with real-time closed circuit high-resolution color underwater video equipment. All pertinent findings will be recorded on DVD format (including dive maintenance technician's findings and narrative summary).

Services will include detailed interior video documentation of the potable water tank(s) / clearwell(s) as described on page two (2).

Underwater Operations – All Dive Maintenance Technicians and associated in-tank equipment are fully disinfected in accordance with AWWA Standard C652-02. All system entries will be conducted in accordance with applicable OSHA regulations pertaining to Diving and Confined Space; including 1910.401 thru 1910.441. Specialty equipment may include but is not limited to; appropriate OSHA climbing and personal fall protection, AWWA and ADCI approved commercial diving equipment dedicated to in-service potable water operations.

In-Service Cleaning

In-service removal of accumulated bottom sediment is accomplished using LEC's proprietary HydroDyne™ cleaning equipment. Normal cleaning prices provided include removal of sediment accumulations up to the first three inches (3") in depth or cubic yards given on reservoir information breakout.¹ Material that cannot be vacuumed with LEC's HydroDyne™ (e.g., concrete, gravel, misc. materials or compact sediment requiring the use of a hand nozzle), is considered debris. Cleaning includes up to one hour of debris removal per tank at no additional charge.²

For normal cleaning operations client shall make available an approved discharge location (sewer, cofferdam, etc.) within 300' of the reservoir access hatch. (Site-specific discharge recommendations can be provided by LEC upon request).

Deliverable – Prioritization Schedule

The deliverable provided on site will consist of LEC's on site report, summary recommendations and Immediate Needs Assessment™, which documents discrepancies that require urgent action, and is supplemented by the interior DVD documentation.

Proposal Number
54494

Please reference the Proposal Number above on all Purchase Orders issued.

Assumptions - Based upon information obtained via the systems interview conducted for your facility, the following assumptions were made. Should conditions vary from those stated, additional charges could apply.

- Prior to arrival, and during underwater operations, water level in tanks/clearwells to remain full.³
- Client's Point-of-Contact will be available for access, as well as authorization of any additional requested work.
- Facilities are accessible with LEC's standard truck/trailer combo (overall length – Crew Cab = 23' / Trailer = 22').⁴
- Access into tanks/clearwells are sufficient for man entry (i.e. 24" dia), with no obstructions in the hatchway.
- Exterior inspections will be performed from the ground, installed ladders, and exterior roof while utilizing installed ANSI & OSHA-certified personal fall protection equipment, without additional scaffolding or rigging.
- There are no special discharge requirements (i.e. long distances / permits).

Miscellaneous

All services provided by LEC will be completed in a professional workmanlike manner according to the Terms and Conditions of this Proposal. Any alteration or deviation from the Terms and Conditions of this Proposal, or additional services, involving additional costs, will be completed only upon written authorization by Client or Client's Authorized Representative.

This Proposal is contingent upon weather, delays or other matters beyond LEC's control. Client will carry fire, tornado, and other necessary insurance. LEC will provide all other required insurance coverage, including, but not limited to, General Liability, Employer Liability and Workmen's Compensation Insurance during all operations (certificate of insurance available upon request).

Reservoir Information

<u>Tank</u>	<u>Capacity</u>	<u>Dimensions</u>	<u>Type</u>	<u>Cubic Yards Included</u>
Griffin	360,000	40' high x 39' dia	Aquastore – o/g	10.5 (3 inches)



Proposal Number

54494

Please reference the Proposal Number above on all Purchase Orders issued.

Costing

Cleaning / Inspection & Reporting Sub-Total	\$ 3,210.00
Scheduling Discount (Based on 100% scheduling cooperation)	(\$ 420.00)
Cleaning / Inspection & Reporting (after discount)	\$ 2,790.00

(Prior written approval will be obtained from Client's Authorized Representative for any additional charges outside the Scope described herein).

1. Bottom sediment in excess of three inches or cubic yards stated above will be removed at \$42.00 per cubic yard.
2. Debris removal in excess of one hour per tank will be charged at a rate of \$425.00 per hour.
3. Unscheduled delays, which are a direct result of the utility's obligations (i.e. access and water level), may incur standby/mobilization charges.
4. Access requiring portable set-up (i.e. truck only), will incur an additional setup/tear-down charge.

Pricing above does not include Local, State or Franchise Taxes - if any.

This Proposal, when executed by both parties, shall constitute a binding agreement between the parties. The persons signing on behalf of Client and LEC hereby represent and certify that they are fully empowered to bind the respective parties to this Contract. Client acknowledges that payment for onsite work is due and payable **Net 30 upon completion of on site work**. Progress billing will be applied on any contract whose duration is longer than ten (10) days. A finance charge on past-due accounts is computed at a periodic rate of 1.5% per month, which is an annual percentage rate of 18%.

In the event Liquid Engineering Corporation is required to bring suit to enforce its rights under this Agreement, to collect any and all payments due and owing under this Agreement, or to otherwise determine, protect or enforce its rights and remedies under the Agreement or at law or equity, Liquid Engineering Corporation will be entitled to recover from the client its reasonable attorney's fees, expert fees, costs and expenses incurred in connection therewith.

East Dunkard Water Association

Route 88 Box 241
Dilliner, PA 15327

Accepted & Agreed per Costing Breakdown
Attached Hereto and by Reference Included Here Under

By: _____

Title: _____

Date: _____

LIQUID ENGINEERING CORPORATION

P.O. Box 80230
Billings, MT 59108

(800) 438-2187 Voice / (406) 651-0120 Fax

By:  - Fred Muller

Title: **President**

Date: **November 26, 2019**

Note: This proposal may be withdrawn if not accepted within 90 days from the above LEC signature date.



Proposal Number
54494

Please reference the Proposal
Number above on all Purchase
Orders issued.

Billing / Invoice Requirements

Please return Accounting / Billing information to Fax – (406) 651-0120 or web@liquidengineering.com

Customer Name: **East Dunkard Water Association, PA**

Contact for Accounting/Billing

Name: _____ Title: _____

Phone: _____

Preferred Delivery Method: ☐ Fax, ☐ Email, ☐ Postal Mail ☐ Other _____

Is a Purchase Order required? ☐ Yes, ☐ No (Please forward PO when issued)

Fax: _____

Email: _____

Address _____

City _____ State _____ Zip Code _____

Additional Notes/Instructions:



Proposal Quote:



ROBOTIC ON-LINE CLEANING & SURVEY INSPECTION

ONE GROUND LEVEL GLASSED FUSED STORAGE TANK

Prepared for:

Jim Holbert-Plant Manager
East Dunkard Water Authority
P.O. Box 241
2790 S. EightyEight Rd.
Dilliner, Pa 15327
PHONE (724) 943-3713
Email: eastdunkard@gmail.com

Prepared by:

Rusty Goeller- Co-Founder, V.P.
Scantron Robotics-Robotic Cleaning Solutions
Dec 4, 2019

I. OVERVIEW:

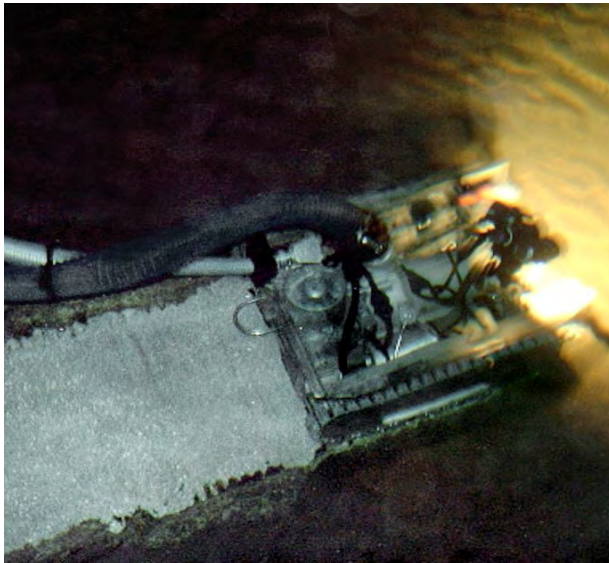
I. Proposed Project Work:

SCANTRON ROBOTICS INC/Robotic Cleaning Solutions. utilizes Remote Operated Vehicles (ROV) machines to provide both inspection and cleaning services for tanks, reservoirs, clear-wells, cooling towers, service water tanks, de-min tanks, raw water tanks, clarifier tanks, resin tanks, etc., “on-line”. This quote is pursuant to our email and telephone correspondence. Please accept this proposal as a response to the East Dunkard Water Authority (EDWA) for Scantron’s on-line robotic technology to clean and survey/inspect the following:

Project Overview:

- One On-line robotic cleaning and survey/inspection of: (“One Three hundred & sixty thousand (360,000) Ground Level Glass Fused Potable Water Storage Tank”)
- The Glass Fused tank is for supplying potable drinking water storage
- The tanks measurements are: 39’w X 40’h
- The tank was constructed back in 2012
- The last cleaning and inspection-Never
- The amount of sediment contained on the floor of tank is unknown.

Our recommendation would be to first perform an inspection survey of the aforementioned potable water storage tank by using our “free swimming” Inspection ROV. The inspection survey will help to establish an understanding of the current condition of the reservoir and levels of sedimentation (pockets or concentrated areas) to create a baseline (roadmap) for our approach to cleaning. This can only be done if water visibility allows for an inspection survey.



SCANTRON ROBOTICS INC.

Crawler- Cleaning Crawler “In Action”

Upon completion of the inspection services, we would utilize our Remote Operated Vehicle (ROV) Cleaning Crawler to extract and remove all of the accumulated sedimentation that has built up in the Storage Tank over the years. Scantron’s robotic technology is designated for on-line cleaning and inspections. Our Robotic Cleaning Machine is customized with a high-resolution camera system and uses a power brush system to break-up and remove the sedimentation that has accumulated. The sediment will then be pumped out of tank into mesh bags containing de-chlorinating pucks which would allow discharge into sanitary system or a method of remediation provided by **EDWA** WTP.

SEAMOR “Free Swimming” Inspection ROV

There is no draining required while the SEAMOR inspection services are conducted. The systems remain on-line and in service. The “SEAMOR ROV” will inspect the internal infrastructure of the reservoirs to include vents and screens, interior walls, intake pipes, out-flow pipes, tank floor, valves, cathodic protection system, and sediment accumulations.



SCOPE OF WORK:

The following is the scope of work and deliverables for all SCANTRON's cleaning services:

Step I:

- Perform a survey inspection of the aforementioned "Storage Tank" to:
 - Identify sediment accumulation levels and areas of concentration
 - To provide a roadmap and approach for the robotic cleaning process.
 - Live viewing of both the inspection and cleaning services will be available, and we will record and deliver the video footage of the services (DVD or USB Stick) for your records

Step II:

- Perform Robotic Cleaning Process your system remains on-line to:
 - Remove/Clean sediment accumulation levels
 - Review Internal floor
 - Evaluate the floor condition of the tank, check for cracks or leaks on floor.
 - Scantron will utilize a closed looped pumping process (Robot to disposal outlet) by pumping sediment through cleaning crawler's 3" discharge hose then to designated sediment discharge area provided by **EDWA WTP**.
 - This remediation process will be provided by: **EDWA WTP**.
 - Deliver video footage (DVD or USB Stick) of the inspection and cleaning services for your records.

II. BUDGET PROPOSAL

As an outline of our pricing model for this project, the cleaning services with supporting resources will be billed on a per diem or day rate basis. We also charge a one-time fixed project fee for mobilization, and demobilization. Our variable costs for supporting materials/equipment are inclusive. **This quote is based on two (2) to three (3) 10-hour shifts to complete depending on sediment depth. The client "only" pays for time on-site.**

Services and Items	Estimated Completion Time (Shifts) 2 to 3	Rate (USD)
1 Scantron's on-line Cleaning & Inspection Crawler Service are based 2 to 3 DAYS at \$3,700.00 per day:	\$3,700.00	\$3,700.00
Mobilization and Demobilization Fee: One Time Fee: \$2,500.00	\$2,500.00	\$2,500.00
2 Delays Caused by: HSWA WTP & (Client) Per-hour: \$400.00	\$400.00	\$400.00
Total: + Tax if applicable		\$

1. Estimated Completion Time based on 8-hour workday, with a 1day minimum.

2. Delay Rates are per hour.

TERMS AND CONDITIONS:

If there are conditions or circumstances beyond that which has been discussed or collected in advance, we reserve the right to change the mandatory minimum charges outlined above. The Payment terms for this project will be: **"Based on price listed above Net 15 day's full payment after completion of the ON-SITE services."** There is a Mandatory minimum charge of one per diem day at the cost outlined above, before the project commences. Each additional service day will be billed at the aforementioned rate, and any additional hours of service required beyond a complete service day will be billed at \$400.00 USD Dollars per hour.

III. CONTRACT INITIATION:

SCANTRON ROBOTICS INC. agrees to provide the Services described in Section I, for the costs outlined in Section II. **This proposal is valid for thirty (30) days.** To initiate this contract please sign the specified proposal below scan and return via email to rusty@scantronrobotics.com:

**RCS-SCANTRON ROBOTICS INC.
2593 Lakewood Road
Gibsonia, Pa. 15044**

**Toll Free: 724-444-4217
Cell: 412-576-9910**

Company Name: _____

Printed Name: _____ Date: _____

Signature: _____ Date: _____

Thank you for providing this opportunity to **SRI & RCS**.

Sincerely,

Rusty Goeller

CO-Founder V.P.

Scantron Robotics Inc.

RCS-CEO

Phone: (724-444-4217)

Toll Free: 1-877-757-1537

Email: rusty@scantronrobotics.com

Internet: <http://www.scantronrobotics.com>

STANDARD TERMS AND CONDITIONS:

1. Scantron Robotics Inc (SRI). Robotic Cleaning Solutions (RCS) agrees to provide Client with the services set forth in the proposal pursuant to the terms and conditions ("Terms and Conditions") set forth herein. Together, the proposal and the Terms and Conditions shall constitute the complete agreement between SRI/RCS and the Client ("Agreement") for the services described in the proposal. If there is a conflict between the proposal and these Terms and Conditions, these Terms and Conditions shall control. b) Client shall designate in writing a person to act as its Authorized Representative with respect to this Agreement. c) Client shall provide all information and criteria as to Client's requirements, objectives, and expectations for SRI services including all numerical criteria that are to be met and all standards for development, design, or construction.

2 Billing and Payment a) Client agrees to pay SRI/RCS in accordance with the rates, charges, and/or amount set forth in the attached proposal. Invoices for SRI/RCS services will be submitted either periodically or upon completion of such services, at the election of SRI/RCS. All such invoices shall be due and payable upon receipt unless both parties agree in writing to different terms. b) In the event payment is not timely made, the overdue balance shall bear interest at 1.5 percent per month or the maximum lawful allowable rate, whichever is higher. c) Client's failure to pay any invoice due to SRI/RCS within agreed upon terms will constitute a breach of this Agreement. Without waiving any other claim or right against Client, SRI/RCS may elect to terminate its performance of services upon failure by Client to pay amounts owed SRI when due by providing Client with a written notice of SRI intent to cease, suspend, and/or terminate work in-progress or to be provided on a future date. In the event of a termination by SRI/RCS, Client shall pay SRI/RCS for all services performed as of the date of termination, as well as all reasonable costs incurred as a result of such termination, including, but not limited to, interest, lost profits, and reasonable legal fees. The waiver by SRI/RCS of any of its rights pursuant to the terms and conditions of this Agreement in any one or more instances shall not constitute a waiver of any other rights hereunder or of such rights on any future occasion.

3. Right of Entry a) Client hereby grants to SRI/RCS and its agents, staff, consultants, and contractor or subcontractors permission and the right to enter upon the subject worksite for the purpose of performing all acts, studies, and research, and work contemplated and in accordance with the proposal made pursuant to the terms and conditions recited herein ("Right of Entry"). Should Client not own the site, Client warrants and represents by acceptance of the proposal that it has authority and permission of the site owner and any site occupant to grant SRI/RCS this Right of Entry. b) Client represents and acknowledges that it is now and shall remain in control of the site at all times. SRI/RCS shall have no responsibility or liability for any aspect or condition of the site, now existing or hereafter arising or discovered. SRI/RCS does not, by this Agreement, assume any responsibilities or liability with respect to the site.

4. Site Disturbance Resulting from Work a) Client hereby recognizes that the use of equipment necessary to perform SRI/RCS services may affect, alter, or damage the terrain, vegetation, buildings, structures, and equipment in, at, or upon the site. SRI/RCS shall not be liable to Client for such effect, alteration, or damage. SRI/RCS will take reasonable precautions to limit such effects, alterations and damage. b) Client shall provide SRI/RCS with all previous studies, plans, or other documents pertaining to the work in Client's possession or reasonably obtainable by Client, in support of SRI/RCS services. SRI/RCS will use reasonable care, to locate subsurface structures in the vicinity of SRI/RCS subsurface explorations. Client recognizes that it is impossible for SRI/RCS to assure the sufficiency of such information. Accordingly, Client waives any claim against SRI/RCS, and agrees to defend, indemnify and hold SRI/RCS harmless from any claim or liability for injury or loss allegedly arising from errors, omissions, or inaccuracies in documents or other information provided to SRI/RCS from Client, or from SRI/RCS reasonable reliance on such documents or information.

5. Standard of Care SRI/RCS shall perform its services in a professional manner consistent with the standard of care applicable to similar services in the jurisdiction where the project is located ("Standard of Care"). Client agrees that SRI/RCS is providing no warranty or guarantee, either expressed or implied, in connection with its services or the performance of those services, unless expressly contained in these Terms and Conditions.

6. Insurance

SRI/RCS represents and warrants that its staff is protected by Worker's Public Liability and Property Damage insurance policies. Client agrees that SRI/RCS will not be liable or responsible to Client for any loss, damage, or liability beyond the amounts, limits, exclusions, and conditions of such insurance.

7. Construction Observation Services a) Client agrees that any and all construction services related to SRI/RCS services will be performed by a contract retained by Client ("Contract"), and that SRI/RCS shall have no responsibility or obligation for the performance of Contract. b) The purpose of SRI/RCS site visits will be to enable SRI/RCS to better carry out the duties and responsibilities specifically assigned to SRI/RCS in this Agreement. SRI/RCS shall not, during such visits, or at any time, or as a result of SRI/RCS observations of Contract work, supervise, direct, or have control over Contract work, nor shall SRI/RCS have authority over or responsibility for the means, methods, techniques, equipment choice and usage, sequences, schedules, or procedures of construction selected by Contract, for safety precautions and programs incident to Contract work, nor for any failure of Contract to comply with laws and regulations applicable to Contract furnishing and performing its work, including, but not limited to, those under the Occupational Safety and Health Act of 1970. Accordingly, SRI/RCS neither guarantees the performance of any Contract nor assumes responsibility for any Contract failure to furnish and perform its work in accordance with the Contract Documents. c) It shall be Client's responsibility to notify the appropriate federal, state, or local public authorities or agencies, as required by law or otherwise of any condition that could in anyway constitute a danger or threat to public health, safety, or the environment, arising out of, or in any way related to work performed in accordance with SRI/RCS services.

8. Documents

All logs, digital camera or sonic depictions obtained by visual inspection, camera, or any other manner or use, field data, field notes, laboratory test data, calculations, estimates, and other documents prepared by SRI/RCS shall constitute SRI/RCS instruments of service and shall remain the property of SRI/RCS. SRI/RCS will retain all pertinent records relating to the services performed for a minimum period of five (5) years following submission, during which period, the records will be made available to Client at SRI/RCS office at all reasonable times. Copies will be prepared by SRI/RCS for Client for reasonable cost of reproduction.

9. Governing Laws This Agreement shall be governed and interpreted by the laws of the United States of America, excluding any rule or principle that would refer to and apply the substantive law of another State or jurisdiction. b) Each provision of this Agreement is severable and distinct from and independent of every other provision hereof. If one provision is declared void or unenforceable, the remaining provisions shall remain in effect. The terms contained in Section 9 shall survive the termination or expiration of this Agreement.

10. Indemnification

To the fullest extent allowed by law, Client shall indemnify and hold SRI/RCS, its affiliates, directors, officers, employees and agents harmless from and against all claims, losses, damages, liabilities, costs, attorney fees and expenses sustained or incurred, directly or indirectly, to the extent arising out of or relating to this Agreement, including, but not limited to, the negligent acts, errors, omissions, the treatment, storage, disposal or transportation of toxic or hazardous waste or contaminating substance, violation of any federal, state, or local statute, regulation, or

ordinance relating to hazardous waste and environmental contamination by Client, its affiliates, officers, employees, contractors and agents in the performance of professional Services by Engineer and its Sub-consultants.

11. Confidentiality

As a result of the performance of SRI/RCS services, SRI/RCS may have access to information and materials of a highly sensitive nature belonging to Client, including confidential information. SRI/RCS agrees that SRI/RCS shall not, without Client's prior written consent, disclose, make commercial or other use of, or give or sell to any person, firm, or corporation, any confidential information received directly or indirectly from Client or acquired or developed in the course of the performance of this Agreement unless: (1) required to do so pursuant to applicable law; or (2) it is rightfully in the possession of SRI/RCS from a source other than Client prior to the time of disclosure of the information to SRI/RCS under this Agreement; or (3) it was in the public domain prior to the time of the SRI/RCS receipt; or (4) it was independently developed by SRI/RCS prior to the time of receipt.

12. Claims and Disputes a) Any and all claims, disputes or other matter in question arising out of or related to the services provided by SRI shall be subject to mediation as a condition precedent to dispute resolution. If such matter relates to or is the subject of a lien arising out of the services, the SRI/RCS or the Client may proceed in accordance with applicable law to comply with the lien notice or filing deadlines prior to resolution of the matter by mediation or by dispute resolution. Unless the parties mutually agree otherwise, mediation shall be administered by the SASK & PA Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in a place mutually agreed upon.

b) If the parties do not resolve a dispute through mediation, the dispute shall be subject to [arbitration which, unless the parties mutually agree otherwise, shall be administered by the SASK & PA Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement] [or] [litigation in a court of competent jurisdiction in the state or jurisdiction in which the designated SRI /RCS Agent is located or resides.

13. Limitation of Liability a) SRI/RCS and Client waive consequential damages for claims, disputes or other matters in question arising out of or relating to SRI/RCS services. b) To the fullest extent permitted by law, the total liability of SRI/RCS, its officers, directors, employees, agents, and contractors to Client, for any and all injuries, claims, losses, expenses, or damages whatsoever arising out of or in any way related to SRI/RCS services, the project or this Agreement shall not exceed the total compensation received from SRI/RCS under this Agreement.

14. Force Majure Delays

In the event that SRI/RCS services are interrupted due to causes beyond its control, SRI/RCS shall be compensated by Client for the labor, equipment and other costs SRI/RCS incurs in order to maintain its workforce for Client's benefit during the interruption (reference service & items). Notwithstanding the foregoing, SRI/RCS shall not hold Client responsible for damages or delays caused by acts of God or other circumstances beyond Client's control, and which could not reasonably be anticipated or prevented

THEREFORE, intending to be legally bound for the East Dunkard WTP & the Client and SRI/RCS execute this Agreement this ____ day of _____, 2019.

Appendix I Line ID Marker Quotes



Part

ACP-066, ACP-072, ACP-078

Technical Data Sheet

Scope

This specification covers the minimum material, mechanical and performance requirements of the fiberglass composite pipeline and cable marker as manufactured by ACP International.

This product shall be used to provide daytime and nighttime delineation for utilities or other marking applications requiring assured long-term outdoor durability, vandal resistance, and impact resistance.

Flexible Line Markers



Flexible Line Markers

The U.S. Department of Transportation requires the use of markers to indicate the approximate location of underground pipelines. Markers are located at road, railroad and navigable waterway crossings. Markers do not indicate the depth of the pipeline.

Specifications for the Flexible Line Marker covers the minimum material, mechanical and performance requirements of the fiberglass composite pipeline and cable marker as manufactured by ACP International.

This product shall be used to provide daytime and nighttime delineation for utilities or other marking application requiring assured long-term outdoor durability, vandal resistance, and impact resistance.

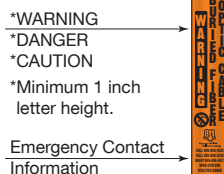
Recommended ACPA Uniform Color Code for Marking Underground Facilities

Underground Utility Markers will adhere to the following color codes:

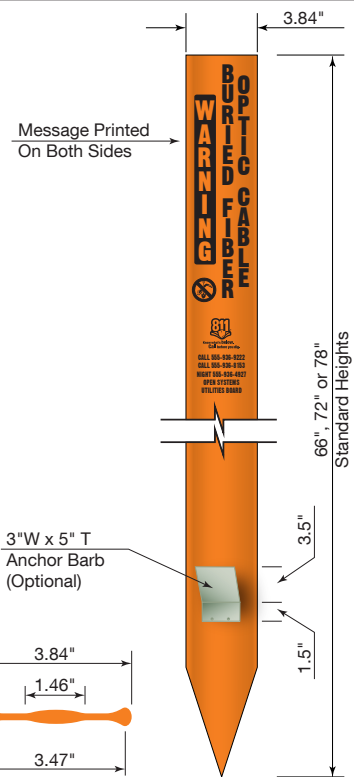
	Electric
	Gas - Oil - Steam
	Communication CATV
	Water
	Sewer
	Reclaimed Water
	Proposed Excavation
	Parks and Recreation

Marker Display

- The material transported through the pipeline or the type of underground utility.
- The name of the pipeline operator.
- Toll-free emergency telephone number.



Product Designation:
Cable, Gas or Other



Specification Sheet

Flexible Line Markers with Direct Printing

	Drawn By: J.Y. Rollins	Approved By: M. Prince	Date: 09/04/2018	Sheet No.: 1 of 2

ACP International/SA-SO/Jim's Work/Marketing Projects/technical drawings/flexible line markers/flexible_line_markers_direct.ai

Flexible Line Markers

Technical Description, Design and Material

The ACP International fiberglass composite pipeline and cable marker shall be a single piece, with single or double-sided print. The marker shall be capable of simple, permanent installation by a single person using a manual driving tool. The marker, upon proper installation shall resist displacement from wind, vehicle and livestock impact forces. The marker shall be of a constant I-Beam design and have a thicker middle cross sectional design that is reinforced by longitudinal ribs along each edge that shall protect both sides of the marker in the post driving process and also provide structural rigidity. The bottom end of the marker shall be pointed for ease of ground penetration.

The marker will be constructed of a durable, UV resistant, continuous glass fiber reinforced thermosetting composite material which is resistant to impact, ozone, and hydrocarbons within a service temperature of -80° F to +160° F.

The marker shall be designed to bend underneath the form of most cars and flex back undamaged into its upright position with a recommended embedment depth of 18-24" (depending on the softness of the ground) for all lengths of marker.

The marker shall come in white, orange, yellow, blue, brown, green, red, and purple. Custom colors or heights shall be available upon request.

The marker shall be pigmented throughout the entire-cross section as to produce a uniform color, which is an integral part of the material. UV-resistant materials shall be incorporated in the construction to inhibit fading or cracking of the delineator upon field exposure.

Dimensions

All markers shall be 3.84" wide and weigh 0.55 lbs. per foot.

Printing Options: Direct Print

- Outdoor rated enamel ink (one color)

Flexible Line Marker w/
15" reserved space for
printing on both sides



Flexible Line Marker
ACP-066 - 66"
ACP-072 - 72"
ACP-078 - 78"



Description	ASTM Standard	Rating
Ultimate Tensile Strength, PSI	D-638 / D-3916	75,000
Ultimate Compressive Strength, PSI	D-695	50,000
Specific Gravity	D-792	1.8
Weight % Glass Reinforcement	D-2584	60
Barcol Hardness		

Specification Sheet				
Flexible Line Markers with Direct Printing				
	Drawn By:	Approved By:	Date:	Sheet No.:
	J.Y. Rollins	M. Prince	09/04/2018	2 of 2

ACP International/SA-SO/Jim's Work/Marketing Projects/technical drawings/flexible line markers/flexible_line_markers_direct.ai

Technical Description, Design, and Material

The ACP International fiberglass composite pipeline and cable marker shall be a single piece, double-sided. The marker shall be capable of simple, permanent installation by a single person using a manual driving tool. The marker, upon proper installation, shall resist displacement from wind, vehicle, and livestock impact forces. The marker shall be of a constant I-Beam design and have a thicker middle cross sectional design that's reinforced by longitudinal ribs along each edge that shall protect both sides of the marker in the post driving process and also provide structural rigidity. The bottom end of the marker shall be pointed for ease of ground penetration.

The marker will be constructed of a durable, UV resistant, continuous glass fiber reinforced, thermosetting composite material which is resistant to impact, ozone, and hydrocarbons within a service temperature of -80° F to + 160° F.

The marker shall be designed to bend underneath the form of most cars and flex back undamaged into its upright position with a recommended embedment depth of 18-24" (depending on the softness of the ground) for all lengths of marker.

The marker shall come in white, orange, yellow, blue, brown, green, red, and purple. Custom colors or lengths shall be available upon request.

The marker shall be pigmented throughout the entire-cross section as to produce a uniform color, which is an integral part of the material. UV resistant materials shall be incorporated in the construction to inhibit fading or cracking of the delineator upon field exposure.

Dimensions

All markers shall be 3.84" wide and weigh .55 lbs per foot. Markers shall also be produced in custom lengths of 62", 84", and 90".

Part # Length

ACP-066	66"
ACP-072	72"
ACP-078	78"

Mechanical Properties

Description	ASTM Standard	Rating
Ultimate Tensile Strength, PSI	D-638 / D-3916	75,000
Ultimate Compressive Strength, PSI	D-695	50,000
Specific Gravity	D-792	1.8
Weight % Glass Reinforcement	D-2584	60
Barcol Hardness	D-2583	50
Flexural Strength, PSI	D-4476 / D-790	60,000
Flexural Modulus, PSI	D-4476 / D-790	3,300,000

The marker should be able to withstand a resistance/flexibility test in both hot and cold situations. In the hot test, condition the marker to a minimum of two hours at $140^{\circ}\text{F} \pm 3^{\circ}\text{F}$ for at least two hours. The unit shall then be held at the bottom end in a vertical position and the top end bent 90° such that it parallels the floor. The marker shall return to within 5° of the upright position within 30 seconds. The bend test shall be repeated three times in quick succession, completing the test within 2.5 minutes of post removal from the conditioning temperature.

The same resistance/flexibility test should be repeated on the same type of marker but its temperature conditioning should be set at $-40^{\circ}\text{F} \pm 3^{\circ}\text{F}$.

There shall also be a test for cold impact resistance. The marker shall be conditioned for a minimum of two hours at $-40^{\circ}\text{F} \pm 3^{\circ}\text{F}$. A minimum two-pound spherical weight should be dropped a distance of five feet through a virtually frictionless vertical guide to impact the surface of the marker at its mid section. The surface of the post being struck by the steel ball shall be in a horizontal position with the post supported and held in position in both ends. The post shall be subjected to five impact tests concentrated near the middle of the post within 10 minutes from the removal of the environmental chamber. Excessive fracturing, cracking, or splitting of the posts shall constitute failure.

The same cold impact resistance test shall be repeated by striking another marker flush against a flat solid surface three times within two minutes after its removal from the conditioning chamber. To strike the marker it should be manually swung through a 90° arc, and the marker shall not fracture or shatter upon impact.

The marker should also be capable of self erecting and remaining functional after being subjected to a series of ten impacts by a typical passenger sedan at 35 m.p.h. The marker should retain a minimum of 60% of its sheeting.

IMPORTANT NOTICE: ACP International and SA-SO (a division of ACP International) trusts that the user of the product has the most accurate knowledge of how the product might be most efficiently or safely utilized in any given application or environment.

ACP International and SA-SO also trust that the above technical data and product information is based on thorough and accurate testing of the product, but are not liable for any loss or damage to the product (or any other product, employee, or building from which the product might come into direct or indirect contact) resulting from an intentional or unintentional mishandling of the product.



ACP International
521 N. Great Southwest Pkwy.
Arlington, Texas 76011 U.S.A.
P: (817) 640-0992
F: (817) 633-3131
Online: www.acpinternational.com



SA-SO
525 N. Great Southwest Pkwy.
Arlington, Texas 76011 U.S.A.
P: (972) 641-4911
F: (972) 660-3684
Online: www.sa-so.com

Last Modified
5/8/2019 5:59:09 PM



QUOTATION

Q20 -24183

TUS A-022_1 Attachment
521 N. Great Southwest Pkwy
Arlington, TX 76011
817-640-0992

Quoted to SAM CARROLL
P 724-503-4125 F
Email sc@harshmanllc.com
Company HARSHMAN CE GROUP, LLC

Cust
Code

Date 01/10/2020

Quoted by Jonathan Jones
Lead Time 2-6 WEEKS
Terms

Part # / Size	Description	Qty	UM	Unit Price	Total Price
1	ACP066-**1 66"	500	EA	13.68	6840.00
	BLUE LINE MARKER WITH DIRECT PRINT SINGLE SIDED, TEXT TBD				
2	NOTES				
	ABOVE PRICING FOR 1 SIDED QUANTITY 100-999 ONLY QTY 10-99: \$19.16 EACH / QTY 1000+ \$11.70 EACH				
3	ACP066-***2 66"	500	EA	14.95	7475.00
	BLUE LINE MARKER WITH DIRECT PRINT DOUBLE SIDED, TEXT TBD				
4	NOTES				
	ABOVE PRICING FOR 2 SIDED QUANTITY 100-999 ONLY QTY 10-99: \$21.79 EACH / QTY 1000+ \$12.68 EACH				

Subtotal \$14,315.00

Freight Estimate

Total Quote \$14,315.00

SHIP TO ADDRESS

Company: _____
Attention: _____
Address only: _____
Inst. Ste, etc: _____
Ship To Phone: _____
Ship To City: _____
Ship to State: _____ Zip _____

Ship to for Freight Estimate

Shipping Via BEST WAY
Shipping Terms PrePay & Add
Transit Time

Freight estimates are only valid for 14 days.
A quote not accepted within ninety (90) days is subject to review.
Custom products are NOT returnable, refundable or cancelable.

Appendix J Ductile Iron Pipe Details and Replacement Proposal





100 Courson Hill Road
Washington, PA 15301
T: 724-825-5577
F: 724-229-8255

December 4, 2019

East Dunkard Water Authority
Main Trunk Service Line Replacement Project

PA Small Water & Sewer Grant Application

Project Description:

(a) Detailed project description:

The main trunk service line for clean water leaving the East Dunkard Water Authority plant was damaged in 2012 when plant upgrades were being completed. The damage was not addressed at the time. Since that time customers throughout the system experience significant water quality issues in the form of very discolored water heavy laden with iron. The damage to the trunk service line included fractures to the cement lining of the ductile iron pipe, which has resulted in iron being continually transmitted throughout the water system. Presently, whenever there are any changes to water pressure in the system, iron deposits are released resulting in very dirty water to customers. This has been an ongoing problem since 2012 and the damaged main line needs replaced. However, the replacement of this line is complicated and expensive. Nearly 2,000-ft of 10-inch line, bored beneath a state route and a railroad, that can only be offline for hours at a time, must be replaced entirely.

Replacement of the existing ductile iron pipe, which is the only iron pipe in the entire water distribution system, will prevent the transmission of iron into the clean drinking water. Since the existing main trunk line cannot be taken out of service without interruption of service to all of the customers, the new plastic line will be installed parallel to the existing line. Upon decommissioning of the ductile iron line, the Authority will have eliminated any possible source for iron contamination into the service water of customers. Once that is accomplished, through their regular maintenance and flushing of the network, we expect to see all existing iron contamination systematically removed from the system. This has been a tremendous problem to customers since 2012. With the installation of this project, we expect a major and necessary improvement in water quality will be accomplished for East Dunkard's customers.

(b) The specific location of the project area:

The project is located at the East Dunkard Water Treatment Plant with a physical address of 2790 South Eighty Eight Road, Dilliner, PA. A project drawing is provided attached.

(c) The project will result in a substantiated positive economic development impact:

Presently, with the main trunk line in disrepair, the problems of iron contamination into the system and at customer's houses and businesses can be expected to continue. These conditions are a huge detriment to public relations, business development, and economic growth. However, with the replacement of this main line to plastic and elimination of the iron source, customers throughout the system will soon have clean consistent drinking water. We expect this to be an encouragement to economic growth for the area.

(d) The estimated start and end dates of construction:

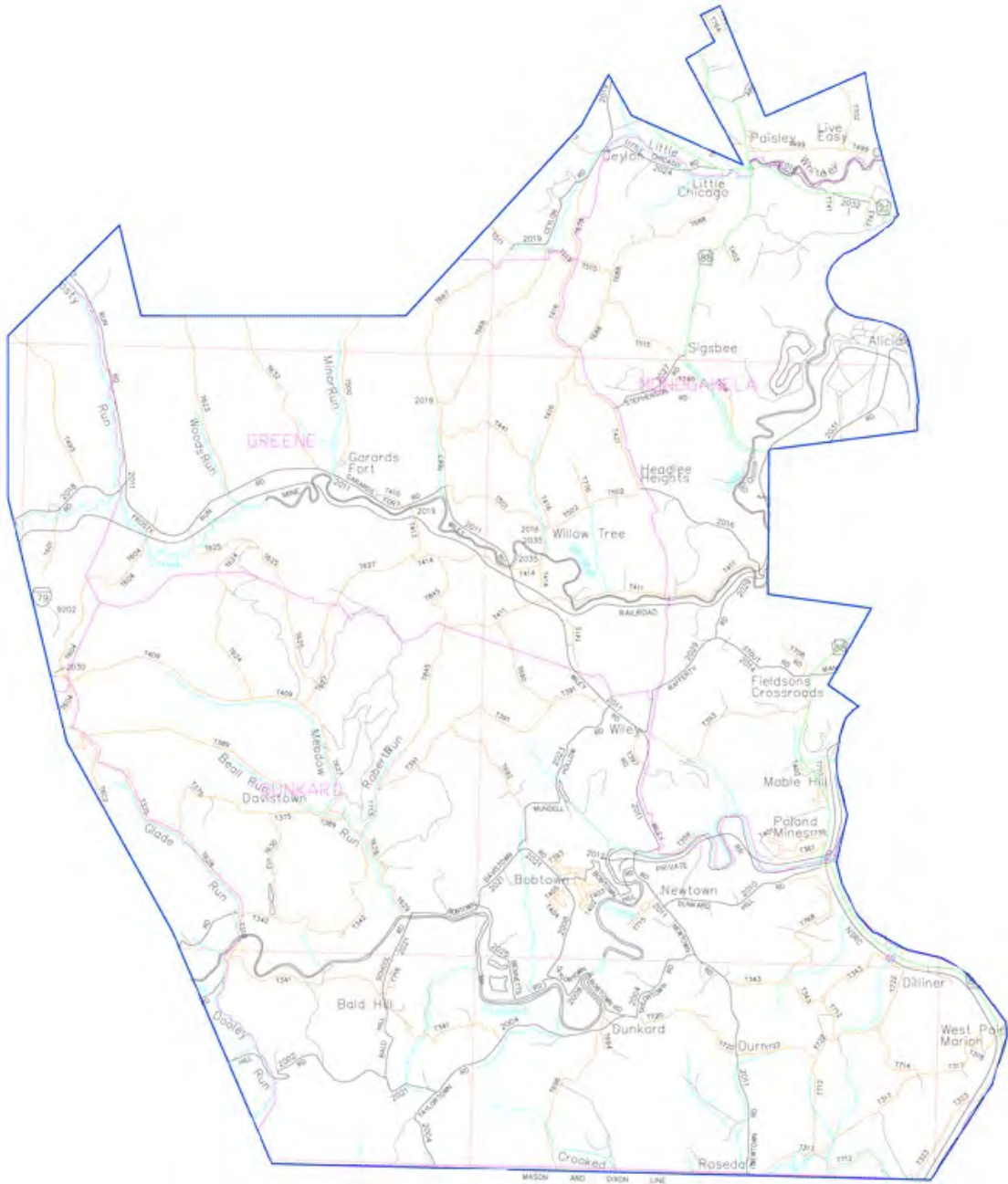
Construction will begin as soon as practically possible after availability of grant funds. Final engineering and permitting will be partially funded by the grant funds and is expected to commence around May of 2020 after the grant is awarded. With an accelerated schedule, the Authority would expect to see construction begin in the Fall of 2020 and completed before 2021. Final restoration may need to carry over into the spring of 2021 for weather considerations.

(e) The names of the municipalities that will potentially benefit from the project:

The East Dunkard Water Authority provides drinking water and fire protection water services throughout many parts of southeastern Greene County PA, servicing 1,650 customers in Dunkard Township, Greene Township, and portions of Monongahela Township, Cumberland Township, Perry Township, & Whiteley Township. The Authority was established in 1969. The first upgrade to the treatment plant occurred in 1982. Most recently the treatment plant was updated in 2012. The Authority owns, operates, and maintains approximately 230 miles of water line throughout the listed municipalities. A service area map follows on the next page:



East Dunkard Water Authority Service Area Map:



- (f) The project promotes the most efficient management of water resources and protects the health and safety of the citizens of the commonwealth:

The purpose of this project is to improve the water quality to approximately 1,650 customers throughout southeastern Greene County.

- (g) the sound management practices implemented by the applicant in the past five years to enhance the long-term sustainability of the system including but not limited to energy efficiency improvements, water conservation, full cost pricing, asset management, and the installation of non-structural alternatives to minimize the amount of storm water that infiltrates the system:

Since 2012 the Authority has invested well over \$100,000 researching, mapping, evaluating, and installing improvements to the system to improve the water quality and eliminate the issue of dirty water from iron deposits. The water existing the plant is continuously monitored and is historically documented as clean with no iron issues. Orthophosphate is regularly added, and permitted secured through PADEP, to reduce corrosivity and prevent the release of historical iron scale into the system. A new backwash pump was installed at a cost of \$75,000 to prevent pressure deviations in the system and reduce the occasions of dirty water, with measured success. At this point the Authority has done everything possible with the exception of the great task of replacing the ductile iron main trunk line. This is financially infeasible without grant funds. Therefore, this request is both urgent and necessary.

- (h) whether the project serves existing populations or new development

The purpose of this project is to improve the water quality to approximately 1,650 existing primarily residential customers throughout southeastern Greene County. There are also many business customers on the system. Once the project is complete, with the improvement of water quality, it is expected that new customers will be added. However at this time, the project serves existing customers.

CC: File 14.042.09





harshman CE GROUP, LLC

100 Courson Hill Road
Washington, PA 15301
T: 724-825-5577
F: 724-229-8255

December 4, 2019

East Dunkard Water Authority
Main Trunk Service Line Replacement Project

PA Small Water & Sewer Grant Application

Permits

This project is expected to require the following permits:

- PA DEP – Water Quality (distribution system modifications)
- PennDOT – Highway Occupancy Permit (road boring)
- Conservation District / PA DEP – NPDES (for earth disturbance)

Sincerely,

James Harshman, PE
Engineer for East Dunkard Water Authority

CC: File 14.042.23



100 Courson Hill Road
Washington, PA 15301
T: 724-825-5577
F: 724-229-8255

December 4, 2019

East Dunkard Water Authority
Main Trunk Service Line Replacement Project

PA Small Water & Sewer Grant Application

Cost Estimate

Item	Qty	Unit	\$/Unit	Total \$		
Mobilization & Demobilization	1	LS	\$ 10,000.00	\$ 10,000.00		
Construction Survey	1	LS	\$ 5,000.00	\$ 5,000.00		
Traffic Control	1	LS	\$ 15,000.00	\$ 15,000.00		
Clearing & Grubbing	1	LS	\$ 7,500.00	\$ 7,500.00		
10" C900 Plastic Water Main	1900	LF	\$ 95.00	\$ 180,500.00		
State Route & RR Boring w/ Casing	120	LF	\$ 825.00	\$ 99,000.00		
Restoration	1	LS	10000	\$ 10,000.00		
					DCED	East Dunkard Water
					PA SWS Grant	Authority Funds
Construction SubTotal			\$ 327,000.00	\$ 327,000.00	\$ 277,950.00	\$ 49,050.00
Construction Contingency (10%)			\$ 32,700.00	\$ 32,700.00	\$ 27,795.00	\$ 4,905.00
					\$ -	\$ -
Engineering (15%)			\$ 53,955.00	\$ 53,955.00	\$ 45,861.75	\$ 8,093.25
Construction Inspections (10%)			\$ 28,776.00	\$ 28,776.00	\$ 24,459.60	\$ 4,316.40
Legal (7%)			\$ 25,179.00	\$ 25,179.00	\$ 21,402.15	\$ 3,776.85
Total Project Estimate			\$ 467,610.00	\$ 467,610.00	\$ 397,468.50	\$ 70,141.50
Project Share Percentages/Match Contribution					85%	15%



James Harshman, PE
Engineer for East Dunkard Water Authority

CC: File 14.042.23



April 8, 2024

Via Electronic Mail

East Dunkard Water Authority, in care of its Receiver, Pennsylvania-American Water Company
2790 South Eighty-Eight Road
East Dunkard PA 15327

Re: East Dunkard Water Authority
PWSID No. 5300012
Greene County
August 20, 2021 Field Order
Cessation of Obligations Under November 2020 Corrective Action Plan

Dear Sirs and Madams:

This letter is in regard to the East Dunkard Water Authority's (East Dunkard) obligations under the November 2020 Corrective Action Plan prepared by Harshman CE Group, LLC (2020 CAP). On April 5, 2024, Pennsylvania American Water Company, acting as receiver for East Dunkard, submitted Standard Operating Procedures (SOPs) to the Department with a request to utilize the submitted SOPs in lieu of the existing 2020 CAP. After review and consideration of these SOPs, the Department is terminating East Dunkard's obligation to continue to implement the 2020 CAP as of the date of this letter. As of this date, East Dunkard should implement the submitted SOPs in lieu of the previous 2020 CAP.

Thank you for your prompt attention to this matter. If you have any questions regarding this letter, please contact me at rediehl@pa.gov or 412-442-4210.

Sincerely,

Renee L. Diehl
Program Manager
Southwest Safe Drinking Water Program

c: Region

Daniel J Hufton

From: Brandy M Braun
Sent: Friday, April 5, 2024 2:52 PM
To: Renee Diehl
Cc: Daniel J Hufton; Ryan A Hardgrove; Timothy Berdar; Timothy J Patterson
Subject: East Dunkard SOPs
Attachments: EDWA SOP - Boil Water Advisory Guidance.pdf; EDWA SOP - Main Break Disinfection - Routine Breaks.pdf; EDWA SOP - Water Quality Notifications - Flushing.pdf; EDWA SOP - Water Quality Notifications - General.pdf

Renee,
Please see the attached SOPs that were developed by the PAWC designated ORCs and AOs providing compliance oversight at East Dunkard Water Authority. We request the Departments consideration to use these SOPs in place of the requirements listed in the 2020 EDWA CAP. The CAP aims to address customer complaints and disturbances in the distribution system, and we believe that the processes we have implemented, documented in the attached SOPs, eliminate the need for the CAP.

Please let me know if you have any questions or concerns with our process to ensure reliable service and improved water quality to the customers of EDWA.

Sincerely,
Brandy

Brandy M. Braun
Director, Water Quality and Environmental Compliance
Pennsylvania American Water Company
852 Wesley Drive
Mechanicsburg, PA 17055
C: 724.986.3617

SOP #	2499-OPERATIONS-EDWA-SOP-OPS MGMT-1	Effective	04/05/24
Task	Issuing a Boil Water Advisory Guidance		
For Roles	Water Quality Supervisor, System Superintendent, Local Operations Supervisors for Production and Field Operations		
Site	East Dunkard Water Authority (EDWA)		
Frequency	As Needed		
Owner	Tim Berdar, Tiffany Reed		

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Overview

This guidance describes the protocol for issuing a Boil Water Advisory (BWA) during situations that pose an imminent risk to public health upon short-term exposure. This protocol references DEP guidance documents and Safe Drinking Water regulations from 25 Pa. Code §109.

Note: In accordance with the February 8, 2024, Commonwealth Court Order, Pennsylvania American Water (PAAW) is currently serving as East Dunkard Water Authority's (EDWA's) operator in responsible charge (ORC).

Deficiencies that may Require a Boil Water Advisory

- Loss of positive pressure in distribution system caused by a situation other than a main break, such as a power outage, pump failure, source outage, or depletion of storage.
- Loss of positive pressure in distribution system **and** there is evidence or high risk of contamination. These determinations should be made by or in consultation with a Class E certified operator.
 - Evidence of contamination. Some examples of evidence of contamination within the distribution system include but are not limited to:
 - Changes to the physical characteristics of the water, such as unusual discoloration, taste or odor, or increased temperature due to backflow from a hot water heater.
 - Changes to the water chemistry as evidenced by field test results.
 - High-risk situations:
 - A flooded trench that cannot be properly dewatered below the level of the pipe being repaired.
 - Nearby leaking sewer lines or failing on-lot septic systems.
 - High unaccounted for water loss (>20%) due to leaks near the break.
 - Low water service that results in loss of service to customers.
 - Evidence of contamination caused by a stream or river crossing near the site of the main break.
 - Any condition that allows contaminated water to enter the distribution system.
- E. coli contamination.
 - If an E. coli-positive check sample follows a total coliform-positive sample.
 - If a total coliform-positive check sample following an E. coli-positive sample.
 - Failure to take all required check samples following an E. coli-positive sample.
 - Failure to test for E. coli when any check samples test positive for total coliform.
- Failure of a key treatment process involving filtration or disinfection.
 - Examples: Non-detectable residual at the entry point, exceedance of 1 NTU at the combined filter effluent, operating beyond permitted design capacity, etc.
- Waterborne disease outbreak, unusual loading of microbes in source water, or other situations that may have serious adverse effects on public health.

Safety

Reference any site-specific guidance.

JSAs

N/A

Equipment Checklist

N/A

Process

1. Notify DEP

Step	Action	Comment
1.	 Important: Notify DEP within 1 hour of discovering the situation.	You must speak directly to a DEP employee or leave a message with DEP's emergency hotline (see Appendix E for phone numbers).
2.	Consult with DEP and comply with all public notice requirements.	

2. Distribute the Advisory

Step	Action	Comment
1.	Distribute the advisory to all affected customers as soon as possible, but no later than 24 hours after discovering the violation.	Distribution: • Direct delivery: Hand delivery, email, automated telephone dialing system, etc. • Use broadcast media to reach non-residential customers. Post the full advisory on a website and/or record it on a dedicated phone line. • Make a good-faith effort to properly notify critical customers. See Business Performance Critical Customer Procedure.
2.	Send a copy of the advisory and its certification form to DEP within 10 days .	

3. Complete Corrective Actions

Step	Action	Comment																										
1.	Complete corrective actions necessary to return to compliance.	Corrective actions may include: - Repairing, replacing, or optimizing treatment processes and mains. - Flushing lines and storage tanks, conducting cross-connection surveys, and/or using an alternate source. i Note: Repair main breaks in accordance with ANSI/AWWA Standard C-651-05.																										
2.	Before collecting total coliform samples: Displace/flush water from distribution system to achieve satisfactory water quality results. - Restore affected storage tank levels and distribution system pressures to normal operation.																											
3.	Obtain total coliform-negative samples on two consecutive days.	Collect samples in the affected area, a minimum of 12 hours apart. See below. <table><tr><th colspan="2">Minimum # Check Samples Required Each Day to Lift a BWA</th></tr><tr><th>Population Affected*</th><th>Minimum # of Samples</th></tr><tr><td>1 – 500</td><td>1</td></tr><tr><td>501 - 1,000</td><td>2</td></tr><tr><td>1,001 – 2,000</td><td>3</td></tr><tr><td>2,001 – 3,000</td><td>4</td></tr><tr><td>3,001 – 4,000</td><td>5</td></tr><tr><td>4,001 – 5,000</td><td>6</td></tr><tr><td>5,001 – 7,500</td><td>7</td></tr><tr><td>7,501 – 10,000</td><td>8</td></tr><tr><td>10,001 – 25,000</td><td>9</td></tr><tr><td>25,001 – 50,000</td><td>10</td></tr><tr><td>> 50,000</td><td>11</td></tr></table> *Population affected = # service connections x 2.7 people. (DEP follows the chart generally, but they could require more samples under extreme circumstances)	Minimum # Check Samples Required Each Day to Lift a BWA		Population Affected*	Minimum # of Samples	1 – 500	1	501 - 1,000	2	1,001 – 2,000	3	2,001 – 3,000	4	3,001 – 4,000	5	4,001 – 5,000	6	5,001 – 7,500	7	7,501 – 10,000	8	10,001 – 25,000	9	25,001 – 50,000	10	> 50,000	11
Minimum # Check Samples Required Each Day to Lift a BWA																												
Population Affected*	Minimum # of Samples																											
1 – 500	1																											
501 - 1,000	2																											
1,001 – 2,000	3																											
2,001 – 3,000	4																											
3,001 – 4,000	5																											
4,001 – 5,000	6																											
5,001 – 7,500	7																											
7,501 – 10,000	8																											
10,001 – 25,000	9																											
25,001 – 50,000	10																											
> 50,000	11																											

4. Lift Advisory

Step	Action	Comment
1.	Once corrective actions are completed, contact DEP. • If DEP required specific corrective actions, you must receive approval from DEP to lift notice. • If not, directly notify DEP that corrective actions were completed, and the advisory has been lifted.	
2.	Issue a 'Lift Notice' to affected customers as soon as possible, but no later than 24 hours.	The Lift Notice should be distributed in the same manner as the initial BWA. Make a good faith effort to notify critical customers.
3.	Send a copy of the Lift Notice and its certification form to DEP within 10 days.	

References

DEP Guidance

- [Policy for Issuing and Removing Water Supply Warnings](#)
- [Policy for Determining When Loss of Positive Pressure Situations in the Distribution System Require One-Hour Reporting to the Department and Issuing Tier 1 Public Notification](#)

DEP Safe Drinking Water Regulations

- [§ 109.408. Tier 1 public notice—categories, timing and delivery of notice](#)
- [§ 109.301. General monitoring requirements.](#)

Forms

- [Public Notification Certification Form](#)

BOIL WATER ADVISORY CHECKLIST

EVENT DESCRIPTION

System / PWSID: _____

Description of affected area: _____

Description of event: _____

Alternative water supply provided? (circle one) Yes No

Population affected (service connections x 2.7): _____

of bacteria samples required*: _____

*See [Appendix A: Required Bacteria Samples](#)

Advisory Type (circle one): Mandatory Precautionary

*See Appendix B: [Advisory Types](#)

INTERNAL NOTIFICATIONS

 **Important:** Initial conference call must be held **within 30 minutes of discovery of situation** that may require a BWA.

- ☐ When a BWA is deemed necessary, a conference call must be held with the following functional groups included:
- Operations
 - Water Quality
 - External Affairs
 - Government Affairs.

Other internal notifications may include major accounts managers and GIS.

REGULATORY NOTIFICATIONS

⚠ Important: With the exception of DEP- and PUC-required notifications, all communication with public officials, critical customers, and general customer population should be coordinated and occur.

- ☐ DEP notification is required within 1 hour of the event (Water Quality/Operations)

Date/time/name of
person notified at DEP: _____

- ☐ PUC notification is required if greater than 2,500 customers or 5% of the PWSID (Operations)

Date/time/name of
person notified at PUC: _____

- ☐ Health Department (county-dependent) notification is required if the affected area includes eating and drinking establishments (Water Quality)

Date/time/name of
person notified at Health
Department: _____

- ☐ Municipal officials and other government agencies (Government Affairs/Operations)

CUSTOMER NOTIFICATION

⚠ Important: Goal for customer notification is **1 hour** from time of determination that BWA is necessary.

- ☐ Draw map of affected area for customer notification (Operations)
- ☐ Send customer notification map to GIS for creation of public access map (Operations)
- ☐ Draft customer notification script, public notification, critical customer talking points (External Affairs)

WQ Approval: _____ Operations Approval: _____

*See [Appendix C: Suggested Notification Scripts](#) and [Appendix D: Critical Customer Talking Points](#)

- ☐ Launch customer notification (Operations)

Date/Time: _____

- ☐ Issue Press Release (website, social media, local media, etc.) (External Affairs)

SAMPLE COLLECTION

- ☐ Identify appropriate # of representative sample locations (Water Quality to Operations)

Consider the following:

- Who will collect samples?
- Will samples be collected outside of normal business hours?
 - o If so, will the chosen sites be available?
- What time should samples be collected in order to lift BWA as quickly as possible?
- What method will be used for analysis (Colilert 18- or 24-hour)?

- ☐ Samples must be collected on two consecutive days at least 12 hours apart.

LIFTING BOIL WATER ADVISORY

- ☐ Complete necessary corrective actions (Operations)
- flushing, replenish storage, etc.
- ☐ Collect required bacteria samples (Water Quality/Operations)
- # dependent on population, 2 days of sampling, 12 hours apart
- ☐ Draft BWA lift notice, including any corrective actions customers must take (External Affairs)
- Internal flushing, filter changes, etc. required for mandatory BWA **OR**
 - No action required for precautionary BWA
- ☐ Obtain regulatory approval to lift BWA, if required, and identify approver _____
(Water Quality)
- ☐ Launch customer notification (Operations)
- ☐ Date/Time: _____
- ☐ Issue Press Release (website, social media, local media, etc.) (External Affairs)
- ☐ Submit PN Certification forms (Water Quality or External Affairs)

Appendix A: Required Bacteria Samples

Minimum # Check Samples Required Each Day to Lift a BWA	
Population Affected*	Minimum # of Samples
1 – 500	1
501 - 1,000	2
1,001 – 2,000	3
2,001 – 3,000	4
3,001 – 4,000	5
4,001 – 5,000	6
5,001 – 7,500	7
7,501 – 10,000	8
10,001 – 25,000	9
25,001 – 50,000	10
> 50,000	11

*Population affected = # service connections
x2.7 people

Appendix B: Advisory Types

Advisory Type	Comments
Precautionary Boil Water Advisory	• Issued when the water system experiences a loss in positive water pressure, typically due to a serious main break or low storage tank levels. • A loss of positive water pressure indicates the existence of conditions that could allow contamination to enter the distribution system. • This is the most common type of advisory, which is issued as a precaution until water samples are collected and analyzed to confirm that water quality has not been affected.
Mandatory Boil Water Advisory	• Issued when contamination is confirmed in the water system or a treatment technique violation has occurred, such as loss of chlorine feed or increased turbidity levels in filtered water. • Customers are instructed to boil the water to kill bacteria and other organisms in the water until the issue is resolved and the notice can be lifted. • Contamination from organisms, such as bacteria, viruses, and parasites, can cause symptoms, including nausea, cramps, diarrhea, and associated headaches.

Appendix C: Suggested Customer Notification Scripts

Issue Notice

⚠ Important: Do not delay launching a customer notification due to lack of tanker location information.

Attention EDWA customers: The company has issued a **[PRECAUTIONARY OR MANDATORY]** boil water advisory for customers in **[LOCATION]** due to **[BRIEF DESCRIPTION OF EVENT]**. Water should be boiled for a minimum of one minute before consumption and food preparation until further notice.

To ease this inconvenience, potable water tankers will be available **[LIST LOCATION AND TIME DEPLOYED]**. Tankers will be available from **[LIST TIME TANKERS ARE AVAILABLE]** daily until the advisory is lifted. Customers are asked to bring their own containers to fill. Until we have final guidance from DEP, you may need to remove this language from a notice to our customers. Check with your water quality supervisor for an answer.

For more information on the advisory and a map of the affected area, log on to our website at: www.pennsylvaniaamwater.com, and select Alert Notifications. EDWA is working diligently to resolve the issue and will contact all affected customers when the advisory is lifted. Thank you for your patience and cooperation.

Mandatory Lift

EDWA has lifted the boil water advisory for customers in your area. Results of water testing have confirmed that water quality meets drinking water standards, so there is no longer a need to boil your water.

Please be aware that customers are advised to flush their household pipes before using any water for drinking, cooking, or washing dishes. Pipes can be flushed by running all cold-water faucets in your home for at least five minutes – at one time – with the highest water flow possible. Customers should flush automatic ice makers by making and discarding at least three batches of ice.

For more flushing recommendations, visit our website at: www.pennsylvaniaamwater.com and select Alert Notifications. We want to thank you for your patience and cooperation during this event.

Precautionary Lift

EDWA has lifted the boil water advisory for customers in your area. Results of water testing have confirmed that water quality meets drinking water standards, so customers no longer need to boil their water and may resume normal usage at this time.

For more information, please visit our website at: www.pennsylvaniaamwater.com and select Alert Notifications.

Appendix D: Frequently Asked Questions

What is a boil water advisory?

A boil water advisory is a public notification advising customers to boil tap water before consuming it. Advisories are issued when an event has occurred with the potential to adversely affect water quality or a situation has occurred where there is known degradation of the water quality. There are two types: precautionary and mandatory.

- **Precautionary boil water advisory:** Issued when the water system experiences a loss in positive water pressure, typically due to a serious main break or low storage tank levels. A loss of positive water pressure indicates the existence of conditions that could allow contamination to enter the distribution system. This is the most common type of advisory, which is issued as a precaution until water samples are collected and analyzed to confirm that water quality has not been affected.
- **Mandatory boil water notice:** Issued when contamination is confirmed in the water system. Customers are instructed to boil the water to kill bacteria and other organisms in the water until the issue is resolved and the notice can be lifted. Contamination from organisms, such as bacteria, viruses, and parasites, can cause symptoms, including nausea, cramps, diarrhea, and associated headaches.

What actions do I need to take?

If notified of a boil water advisory, **DO NOT DRINK THE WATER WITHOUT BOILING IT FIRST**. Bring all water to a rolling boil, let it boil for one minute, and cool before using; or use bottled water. You should use boiled or bottled water for drinking, making ice, washing dishes, brushing teeth, and food preparation until you are notified that the advisory has been lifted.

We also recommend the following steps:

- Throw away uncooked food or beverages or ice cubes if made with tap water during the day of the advisory.
- Keep boiled water in the refrigerator for drinking.
- Do not swallow water while you are showering or bathing.
- Provide pets with boiled water after cooling.
- Do not use home filtering devices in place of boiling or using bottled water. Most home water filters will not provide adequate protection from microorganisms.
- Use only boiled water to treat minor injuries. When showering or bathing, avoid allowing the water to come in contact with an open wound.
- Do not wash salad items with tap water during the period. Use bottled water or freshly boiled and cooled tap water.
- To ease inconvenience, EDWA typically provides alternate water sources by placing a water tanker at locations within the affected area. The locations will be listed on the company's

website, news releases, social media, and other communications. Customers are asked to bring their own containers when visiting a tanker for drinking water.

- You may also receive a recorded call from the company about this event, shortly.

How long does a boil water advisory last until it can be lifted?

According to PA Department of Environmental Protection (DEP) guidelines, water samples must be collected to test for bacteria in the distribution system. The first samples are taken on the day when the issue (e.g., main break) has been corrected, and then another set of samples are taken in the next 24 hours. Two consecutive days of "clean" test results are required before DEP will allow the advisory to be lifted. (The process takes 24 hours for test results to come back from the laboratory, so final lab results to lift an advisory can take several days after the event.)

You will be notified when the corrective actions have been completed and you no longer need to boil your water. This information will also be provided on Pennsylvania American Water's website under [Alerts Notification](#).

What should I do once the advisory is lifted?

Customers under a precautionary boil water advisory can resume normal water usage when the notice is lifted without taking additional measures. If you experience cloudy or discolored water, you should run your faucets for a few minutes until the water runs clear.

Should I flush my house pipes?

The company will notify you if it is necessary to flush household pipes and provide instruction for steps to take prior to using the water in the event of a mandatory boil water notice. Flushing simply means letting the water run to ensure that no contaminated water remains in your pipes. If customers are advised to flush household plumbing, the guidelines will likely include:

- Run all cold-water faucets in your home for at least five minutes at one time with the highest water flow possible to prevent splashing or flooding of the drains.
- To flush automatic ice makers, make three batches of ice and discard.
- Run water softeners through a regeneration cycle. Follow the manufacturer's guidelines specified in the owner's manual.
- Run drinking water fountains and water coolers with direct water connections for at least five minutes at the highest flow rate possible.
- Change refrigerator filters.

Can I use the water for showering and bathing?

Yes. Just be careful not to drink the water while you shower or bathe.

Can I use the water for laundry?

If you only have discolored or dirty water due to the main break, then do not use the water to do laundry until the discoloration or dirty water has cleared up.

Can I use the water for washing dishes?

You should NOT use the dishwasher, because the water temperature doesn't reach the boiling point. Dishes should be hand-washed with water that has been boiled first. Or, you can use hot, soapy water and add one tablespoon of bleach per gallon as a precaution, and rinse dishes in cooled water that has been boiled first.

Do I still need to boil my water if I have a filter system on my faucet or refrigerator?

Most point-of-use filters are designed to improve the aesthetics of water (improve taste and odor), and not to remove harmful bacteria. You can learn about the capability of your filter by contacting the manufacturer. If in doubt, you should boil your water or use bottled water even if you have a filtering system.

Appendix E: DEP Office and County Health Department Contact Information by County

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COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF SAFE DRINKING WATER

DEP OFFICE AND COUNTY HEALTH DEPARTMENT CONTACT INFORMATION BY COUNTY

Call 800-541-2050 after 4 pm and before 8 am

County	First Three Digits of Public Water System ID #	DEP Office Address	DEP Office Phone #	DEP Office Fax #
Adams	701	York District Office 150 Roosevelt Ave., Ste. 200 York, PA 17401	717-771-4481	717-845-3496
Allegheny	502	Southwest Regional Office 400 Waterfront Dr. Pittsburgh, PA 15222	412-442-4217	412-442-4242
Armstrong	503	Knox District Office White Memorial Building P.O. Box 669 Knox, PA 16232-0669	814-797-1191	814-797-2706
Beaver	504	Beaver Falls District Office 715 15 th St. Beaver Falls, PA 15010	724-847-5270	724-847-5281
Bedford	405	Altoona District Office 3001 Fairway Dr. Altoona, PA 16602	814-946-7292	814-949-7938
Berks	306	Reading District Office 1005 Cross Roads Blvd. Reading, PA 19605	610-916-0100	610-916-0110
Blair	407	Altoona District Office 3001 Fairway Dr. Altoona, PA 16602	814-946-7292	814-949-7938
Bradford	208	Mansfield District Office 600 Gateway Dr. Mansfield, PA 16933	570-662-0830	570-662-0843
Bucks	109	Southeast Regional Office 2 E. Main St. Norristown, PA 19401	484-250-5980	484-250-5971
Butler	510	New Castle District Office 121 North Mill St. New Castle, PA 16101	724-656-3160	724-656-3267
Cambria	411	Cambria District Office 286 Industrial Park Rd. Ebensburg, PA 15931	814-472-1900	814-472-1861

NOTE: SDWA Corrections should be sent to: FAX 717-787-9549 or FAX 717-772-5630

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Call 800-541-2050 after 4 pm and before 8 am

County	First Three Digits of Public Water System ID #	DEP Office Address	DEP Office Phone #	DEP Office Fax #
Cameron	612	Moshannon District Office 186 Enterprise Dr. Philipsburg, PA 16866	814-342-8200	814-342-8216
Carbon	313	Pottsville District Office 5 W. Laurel Blvd. Pottsville, PA 17901	570-621-3118	570-621-3430
Centre	414	Northcentral Regional Office 208 W. Third St., Ste. 101 Williamsport, PA 17701	570-327-3490	570-327-3565
Chester	115	Southeast Regional Office 2 E. Main St. Norristown, PA 19401	484-250-5980	484-250-5971
Clarion	616	Knox District Office White Memorial Building P.O. Box 669 Knox, PA 16232-0669	814-797-1191	814-797-2706
Clearfield	617	Moshannon District Office 186 Enterprise Dr. Philipsburg, PA 16866	814-342-8200	814-342-8216
Clinton	418	Moshannon District Office 186 Enterprise Dr. Philipsburg, PA 16866	814-342-8200	814-342-8216
Columbia	419	Northcentral Regional Office 208 W. Third St., Ste. 101 Williamsport, PA 17701	570-327-3490	570-327-3565
Crawford	620	Northwest Regional Office 230 Chestnut St. Meadville, PA 16335	814-332-6899	814-332-6121
Cumberland	721	York District Office 150 Roosevelt Ave., Ste. 200 York, PA 17401	717-771-4481	717-845-3496
Dauphin	722	Southcentral Regional Office 909 Elmerton Ave. Harrisburg, PA 17110	717-705-4708	717-705-4930
Delaware	123	Southeast Regional Office 2 E. Main St. Norristown, PA 19401	484-250-5980	484-250-5971

NOTE: SDWA Corrections should be sent to: FAX 717-787-9549 or FAX 717-772-5630

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Call 800-541-2050 after 4 pm and before 8 am

County	First Three Digits of Public Water System ID #	DEP Office Address	DEP Office Phone #	DEP Office Fax #
Elk	624	Warren District Office 321 N. State St. North Warren, PA 16365	814-723-3273	814-723-0964
Erie Note: address & phone number differ depending on system type	625	For Community/ Nontransient PWS: Northwest Regional Office 230 Chestnut St. Meadville, PA 16335 For Transient PWS: Erie Co. Health Dept. Drinking Water Program 606 W. Second St. Erie, PA 16507	Meadville: 814-332-6899 Erie CHD: 814-451-6700	Meadville: 814-332-6121 Erie CDH: 814-451-6775
Fayette	526	New Stanton District Office 131 Broadview Rd. New Stanton, PA 15672	724-925-5500	724-925-5557
Forest	627	Knox District Office White Memorial Building P.O. Box 669 Knox, PA 16232-0669	814-797-1191	814-797-2706
Franklin	728	Southcentral Regional Office 909 Elmerton Ave. Harrisburg, PA 17110	717-705-4708	717-705-4930
Fulton	429	Southcentral Regional Office 909 Elmerton Ave. Harrisburg, PA 17110	717-705-4708	717-705-4930
Greene	530	New Stanton District Office 131 Broadview Rd. New Stanton, PA 15672	724-925-5500	724-925-5557
Huntingdon	431	Altoona District Office 3001 Fairway Dr. Altoona, PA 16602	814-946-7292	814-949-7938
Indiana	532	Knox District Office White Memorial Building P.O. Box 669 Knox, PA 16232-0669	814-797-1191	814-797-2706
Jefferson	633	Knox District Office White Memorial Building P.O. Box 669 Knox, PA 16232-0669	814-797-1191	814-797-2706

NOTE: SDWA Corrections should be sent to: FAX 717-787-9549 or FAX 717-772-5630

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Call 800-541-2050 after 4 pm and before 8 am

County	First Three Digits of Public Water System ID #	DEP Office Address	DEP Office Phone #	DEP Office Fax #
Juniata	434	Southcentral Regional Office 909 Elmerton Ave. Harrisburg, PA 17110	717-705-4708	717-705-4930
Lackawanna	235	Scranton District Office 321 Spruce St., Ste. 300 Scranton, PA 18503	570-963-4521	570-963-3421
Lancaster Note: address & phone number differ depending on location within county	736	<i>Lancaster City and Municipalities to its West</i> Southcentral Regional Office 909 Elmerton Ave. Harrisburg, PA 17110	<i>Municipalities East of Lancaster City</i> Reading District Office 1005 Cross Roads Blvd. Reading, PA 19605	<u>Southcentral Regional Office</u> 717-705-4708 <u>Reading District Office</u> 610-916-0100
Lawrence	637	New Castle District Office 121 North Mill St. New Castle, PA 16101	724-656-3160	724-656-3267
Lebanon	738	Southcentral Regional Office 909 Elmerton Ave. Harrisburg, PA 17110	717-705-4930	717-705-4930
Lehigh	339	Bethlehem District Office 4530 Bath Pike Bethlehem, PA 18017	610-861-2070	610-861-2072
Luzerne	240	Northeast Regional Office 2 Public Square Wilkes-Barre, PA 18701-1915	570-826-2511	570-830-3017
Lycoming	441	Northcentral Regional Office 208 W. Third St., Ste. 101 Williamsport, PA 17701	570-327-3490	570-327-3565
McKean	642	Warren District Office 321 N. State St. North Warren, PA 16365	814-723-3273	814-723-0964
Mercer	643	Northwest Regional Office 230 Chestnut St. Meadville, PA 16335	814-332-6899	814-332-6121
Mifflin	444	Altoona District Office 3001 Fairway Dr. Altoona, PA 16602	814-946-7292	814-949-7938

NOTE: SDWA Corrections should be sent to: FAX 717-787-9549 or FAX 717-772-5630

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Call 800-541-2050 after 4 pm and before 8 am

County	First Three Digits of Public Water System ID #	DEP Office Address	DEP Office Phone #	DEP Office Fax #
Monroe	245	Pocono District Office 2174B Route 611 Swiftwater, PA 18370	570-895-4040	570-895-4041
Montgomery	146	Southeast Regional Office 2 E. Main St. Norristown, PA 19401	484-250-5980	484-250-5971
Montour	447	Northcentral Regional Office 208 W. Third St., Ste. 101 Williamsport, PA 17701	570-327-3490	570-327-3565
Northampton	348	Bethlehem District Office 4530 Bath Pike Bethlehem, PA 18017	610-861-2070	610-861-2072
Northumberland	449	Northcentral Regional Office 208 W. Third St., Ste. 101 Williamsport, PA 17701	570-327-3490	570-327-3565
Perry	750	Southcentral Regional Office 909 Elmerton Ave. Harrisburg, PA 17110	717-705-4708	717-705-4930
Philadelphia	151	Southeast Regional Office 2 E. Main St. Norristown, PA 19401	484-250-5980	484-250-5971
Pike	252	Pocono District Office 2174B Route 611 Swiftwater, PA 18370	570-895-4040	570-895-4041
Potter	653	Mansfield District Office 600 Gateway Dr. Mansfield, PA 16933	570-662-0830	570-662-0843
Schuylkill	354	Pottsville District Office 5 W. Laurel Blvd. Pottsville, PA 17901	570-621-3118	570-621-3430
Snyder	455	Northcentral Regional Office 208 W. Third St., Ste. 101 Williamsport, PA 17701	570-327-3490	570-327-3565
Somerset	456	Cambria District Office 286 Industrial Park Rd. Ebensburg, PA 15931	814-472-1900	814-472-1861

NOTE: SDWA Corrections should be sent to: FAX 717-787-9549 or FAX 717-772-5630

3930-FM-BSDW0560 Rev. 12/2019

Call 800-541-2050 after 4 pm and before 8 am

County	First Three Digits of Public Water System ID #	DEP Office Address	DEP Office Phone #	DEP Office Fax #
Sullivan	257	Mansfield District Office 600 Gateway Dr. Mansfield, PA 16933	570-662-0830	570-662-0843
Susquehanna	258	Scranton District Office 321 Spruce St., Ste. 300 Scranton, PA 18503	570-963-4521	570-963-3421
Tioga	259	Mansfield District Office 600 Gateway Dr. Mansfield, PA 16933	570-662-0830	570-662-0843
Union	460	Northcentral Regional Office 208 W. Third St., Ste. 101 Williamsport, PA 17701	570-327-3490	570-327-3565
Venango	661	Northwest Regional Office 230 Chestnut St. Meadville, PA 16335	814-332-6899	814-332-6121
Warren	662	Warren District Office 321 N. State St. North Warren, PA 16365	814-723-3273	814-723-0964
Washington	563	New Stanton District Office 131 Broadview Rd. New Stanton, PA 15672	724-925-5500	724-925-5557
Wayne	264	Scranton District Office 321 Spruce St., Ste. 300 Scranton, PA 18503	570-963-4521	570-963-3421
Westmoreland	565	New Stanton District Office 131 Broadview Rd. New Stanton, PA 15672	724-925-5500	724-925-5557
Wyoming	266	Northeast Regional Office 2 Public Square Wilkes-Barre, PA 18701-1915	570-826-2511	570-830-3017
York	767	York District Office 150 Roosevelt Ave., Ste. 200 York, PA 17401	717-771-4481	717-845-3496
Out-of-State	999	Rachel Carson State Office P.O. Box 8467 Harrisburg, PA 17105-8467	717-772-4018	717-772-5630

NOTE: SDWA Corrections should be sent to: FAX 717-787-9549 or FAX 717-772-5630

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Review Record

Date	Version	Reviewer	Comments/Changes	Previous Replaced
04/05/24	3	B. Braun	Clarify note to court order wording.	
03/27/24	2	B. Braun	Expand on evidence of contamination.	
03/25/24	1	T. Berdar	General review.	

SOP #	2499-OPERATIONS-EDWA-SOP-OPS MGMT-4	Effective	04/05/24
Task	Main Break Disinfection - Routine Breaks		
For Roles	Water Quality Supervisor, System Superintendent, Local Operations Supervisors for Production and Field Operations		
Site	East Dunkard Water Authority (EDWA)		
Frequency	As Needed		
Owner	Tim Berdar, Tiffany Reed		

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Overview

Use this procedure to disinfect water mains and properly flush the area, after a main break is repaired. This procedure will help you comply with federal, state, and local laws and regulations. This includes:

- Disinfecting the new piping, fittings, connections, etc.
- Flushing the main.
- Collecting and analyzing samples.
- Interpreting sample results.
- Making the required notifications.

Note: In accordance with the February 8, 2024, Commonwealth Court Order, Pennsylvania American Water (PAAW) is currently serving as East Dunkard Water Authority's (EDWA's) operator in responsible charge (ORC).

Background

Contamination can enter the potable water distribution system when a main is shut down and depressurized during repair. It is important to repair, disinfect, and flush the main in a sanitary manner. When a main is isolated and wholly or partly dewatered for repair, you must:

- Disinfect the main before placing it back in service.
- Disinfect all surfaces that contact potable water.

For more detail, refer to the American Water Works Association (AWWA) Standard for Disinfecting Water Mains – AWWA C651-14 and Field Dechlorination – AWWA C655-18 (Appendix A).

Safety

Reference any site-specific guidance.

JSAs

N/A

Equipment Checklist

N/A

Process

1. Disinfecting

Disinfect all new piping, fittings, valves, hydrant connections, gaskets, etc. with hypochlorite solution. Generously spray/swab the full length of the pipe interior.

Note: Water main leaks or breaks repaired in-service with clamping or other devices while the water main remains pressurized, present little danger of contamination and do not require disinfection.

Step	Action	Comment	See
1.	Mix a 3% chlorine solution .	Used approved disinfectant (NSF-approved bleach solution). The AWWA recommends a 1% minimum strength chlorine solution. We recommend using a 3% solution as that strength: • Is easier to dilute. • Accounts for some loss of strength due to aging (for example, if excess solution is stored in crew trucks). Example to mix a 3% chlorine solution: • Use “Purebright bleach” (6% chlorine). • Mix ½ gallon of bleach with ½ gallon of water.	
2.	Transfer the solution into an approved 1-gallon garden sprayer .		
3.	Use the sprayer to spray disinfectant to all interior portions of: • Replacement pipes • Valves • Hydrants • Fittings.		
4.	If desired, you may use an approved bucket and clean mop to swab the pipe interior.		

5.	Continue until you have cleaned all the pipe interior that you can reasonably reach.		

2. Flushing

You must dechlorinate any chlorinated disinfection solution before you discharge it to sanitary or storm sewers or any surface or groundwater. You can use chemical or non-chemical dichlorination methods, based on whether the disinfection solution is considered high- or low-chlorine.

Dechlorination Method	Disinfection Solution Strength
Chemical	High-chlorine (> 4mg/L)
Non-chemical	Low-chlorine ($\leq$ 4mg/L)

Step	Action	Comment	See
1.	Start with the main still isolated .		
2.	Open any valves and hydrants needed to maintain unidirectional flow to the hydrants.		
3.	Determine the average diameter of the isolated main.		
4.	Use the water main break flushing chart to match the: • Main diameter size. • Corresponding size of the isolated main.	This number represents the velocity (flow) in GPM needed to scour the inside of the main at a 3-foot-per-second (FPS) flowrate. See Water Main Break Flushing Chart .	
5.	Use the water main break flushing chart to: • Estimate the system pressure at the location of the repair. • Match the closest option in the chart	This number indicates the approximate flow rate from a fire hydrant using the 4-inch steamer nozzle.	
6.	Estimate the linear footage of the main segment that has been isolated during the shutdown. Use the linear footage and select the closest match in the water main break flushing chart.	This denotes the length of time for the isolated main to be flushed. i Note: Water pressure and main diameter do not impact the length of time required to flush the main. The denoted time automatically assumes three full pipe volumes will be flushed.	

7.	Where hydrants do not exist or are not available, install the following to help with water sampling and testing: • 2-inch corporation stop. • 2-inch service line.	For example, where insertion valves have been used. Note: A 2-inch tap will not achieve the desired flushing velocities but is acceptable where other flushing options are not available.	
8.	Continue to flush until chlorine residuals in the flushed water are consistent with residuals in the local area of the distributions system.	We recommend using unidirectional flow, but you do not have to keep the main in unidirectional flow until samples are read. You can place the main back into service after the following are complete: repaired, all valves opened, disinfected, flushed and samples collected.	

3. Testing Free Chlorine

Step	Action	Comment	See
1.	Turn on the digital chlorine meter .		
2.	Use a Kimwipe to wipe the sample cell clean.		
3.	Dry the sample cell and place it into the meter with the triangle (▼) facing you.		
4.	Press the button to zero the meter.		
5.	Remove the sample cell . Add one powder pillow or one squeeze from the free chlorine dispenser .		
6.	Recap the sample cell, swirl it, and allow 30 seconds reaction time.		
7.	Place the sample cell back into the meter with the triangle (▼) facing you.		
8.	Press the result button and read the result immediately.	i Note: Read the result within one minute.	

4. Making Notifications

Notify the following.

Local Notifications

Notify the mayor or town administrator within one hour of the occurrence of the incident.

Our internal notifications will focus on the local superintendent/ORC and our PAAW Water Quality Team. Any external notifications will be made via External Affairs.

Troubleshooting

N/A

Documentation/Recordkeeping

N/A

References

AWWA Standard C655-18: Field Dechlorination

Refer to [AWWA Standard C655-18: Field Dechlorination](#)

Water Main Break Flushing Chart

Water Main Break Flushing Chart						
Flushing FLOW Required for Pipe Diameter (GPM @ 3 fps)						
6-inches	8-inches	12-inches	16-inches	20-inches	24-inches	30-inches
264	460	1,055	1,866	2,907	4,220	6,594
Flush TIME @ 3 fps (for all pipe sizes)						
100 Ft.	250 Ft.	500 Ft.	1,000 Ft.	2,000 Ft.	2,500 Ft.	3,000 Ft.
2 Minute	4 Minutes	8 Minutes	17 Minutes	33 Minutes	42 Minutes	50 Minutes
Approximate Flow Through 4-inch Steamer Nozzle (GPM)						
40 psi	50 psi	60 psi	75 psi	100 psi	125 psi	150 psi
1,450	1,635	1,804	2,035	2,375	2,680	2,960
Approximate Flow Through 2-inch Nozzle (GPM)						
40 psi	50 psi	60 psi	75 psi	100 psi	125 psi	150 psi
234	264	291	329	384	433	478

* 2-inch service tap may be used only when hydrant is not available (this will not achieve required 3 fps velocity for pipe over 8-inch diameter)

Example:

1,000 LF of 8-inch water main isolated and dewatered/depressurized to replace 3-foot section of pipe to facilitate repair. Normal water pressure on this segment of pipe is 75 psi.

An 8-inch pipe requires 460 GPM to achieve 3 FPS flushing velocity. A pipeline with 75 psi can achieve 2,035 GPM flow through 4-inch FH steamer nozzle. Hydrant to be opened about 25% to achieve the required 460 GPM flow required ($460 \text{ GPM} / 2,035 \text{ GPM} = .22$ or 22%). A 1,000 LF section of pipe will need to be flushed for 17 minutes to flush three full pipe volumes.

Review Record

Date	Version	Reviewer	Comments/Changes	Previous Replaced
04/05/24	4	B. Braun	Clarify note to court order wording.	
03/30/24	3	B. Braun	Restructure content.	
03/27/24	2	B. Braun	Restructure content.	
03/26/24	1	T. Reed, T. Berdar	Review	

Acknowledgements

I have reviewed and approved this SOP

Area Supervisor:

Operators:

I am aware of this SOP

Sr. Supervisor:

Superintendent:

Sr. Manager:

SOP #	2499-OPERATIONS-EDWA-SOP-OPS MGMT-3	Effective	04/05/24
Task	Water Quality Notifications - Flushing		
For Roles	Water Quality Supervisor, System Superintendent, Local Operations Supervisors for Production and Field Operations		
Site	East Dunkard Water Authority (EDWA)		
Frequency	As Needed		
Owner	Tim Berdar, Tiffany Reed		

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Overview

Use this procedure to handle water quality notifications that involve flushing. This includes:

- Handling visual notifications.
- Closing out notifications.

i Note: In accordance with the February 8, 2024, Commonwealth Court Order, Pennsylvania American Water (PAAW) is currently serving as East Dunkard Water Authority's (EDWA's) operator in responsible charge (ORC).

Background

This process starts when a customer contacts the EDWA with a complaint about their water quality:

Water Quality concerns are received in the EDWA office during business hours, by the on-call operator after hours, and through social media inquiries.

- The EDWA employee receiving the call enters the complaint into the tracking spreadsheet.
- The EDWA employee notifies the appropriate PAAW employee.
- Staff handle the complaint based on the type of water quality issue and their job roles.

i Note: After the customer call, the EDWA employee then determines whether they create a flush order. The EDWA employee assigns the order to a crew and a T&D technician is called to investigate and possibly open a hydrant to flush the main out. If the EDWA field operations employee notices that the problem doesn't clear up, or there may be a distribution-related issue, the EDWA field operations employee notifies the superintendent.

Water Quality Notification Types and Responsibilities

Water Quality Notifications		
Type	Handled By	Comments
Visual	EDWA employee	⚠ Important: A contact attempt for all visual notifications must be made within one business day, not including weekends. If a customer requires us to contact them outside of normal business hours (i.e., weekends), the on-call Operations Field Service superintendent is responsible for contacting the customer. If the complaint is non-visual, the PAAW WQ Supervisor on call will be responsible for contacting the customer. The customer can see indicators of possible water quality issues, such as: • Discolored water. • Cloudy water. • Stains on laundry. i Note: EDWA employees handle only visual water quality notifications.

Safety

Reference any site-specific guidance.

JSA's

N/A

Equipment Checklist

N/A

Process

1. Handling Visual Notifications

▲ Important: All visual notifications must be contacted within one business day.

EDWA receives the notification, researches customer information, contacts the customer, and adds notes in the notification in the spreadsheet. If an order is attached, then local operations is responsible for closing the work order before the EDWA employee closes the notification.

Step	Action	Comment	See
1.	The EDWA Team receives an alert via email (or phone) .	The EDWA employee receives the email (or call) first. They will determine whether a flush order is needed. They will not automatically schedule a flush order for a particle and stained laundry notification. If needed, the EDWA employee schedules the order within 30 minutes and responds to the complaint.	
2.	The EDWA Team performs the following steps before calling the customer back.		
3.	Search the customer's area for alerts.	Reviewing the area's alert history allows us to better understand the complaint.	
4.	Select the following for the customer's location: • Street • Municipality.		
5.	Review your search results .		
6.	From the notification, copy the customer's account number .	Entering the account number allows you to access the account notes for that premise.	
7.	Review the customer's account notes .	Check older notes. Look for previous similar complaints. For example: • Is this an ongoing issue? • Does the customer submit unjustified or internal complaints?	

8.	The EDWA employee notifies the ORC of the area of the WQ complaint .		
9.	The ORC identifies a hydrant or blowoff in the area.		
10.	The ORC notifies the EDWA employee of: - Which hydrant or blowoff needs to be open. - The rate of flow to clear/address the system disturbance		
11.	The EDWA employee opens the needed hydrant or blowoff at the rate of flow determined by the ORC.		
12.	Once the blowoff or hydrant is open, the EDWA employee reports their findings back to the ORC.		
13.	The ORC decides from the findings the amount of time that the hydrant or blowoff needs to be open to resolve the complaint.		
14.	The EDWA employee visits the area of the complaint and notifies the ORC that the complaint has been resolved .	Typically, employees are on site while flushing. If an extended flushing period is needed, we would continue flushing and recheck to confirm it is complete. Employees would leave the hydrant or blowoff site and periodically return every few hours to monitor flushing operations. In lower-flow situations, the monitoring period may be extended at the ORC's discretion.	
15.	If the complaint has not been resolved , flushing continues until: - The issue has been resolved. - The customer has been satisfied.		
16.	Once the customer is satisfied, the EDWA employee closes the hydrant or blowoff .		

17.	Call the customer to make sure: • The issue has been resolved. • The customer has no extended issues.	PAAW WQ attempts to call back within the next business day. Extended issues means that either the issue persists after a flush or a new issue appears. If a customer requires us to contact them outside of normal business hours (i.e., weekends), the EDWA employee on call is responsible for contacting the customer. i Note: The EDWA employee may be delayed in completing the investigative flush in the appropriate timeline. If you call the customer before the flush is completed: • Advise the customer that we will be out to flush (if we are flushing) the area for them or inform them if there is a main break in their area. • Give the customer your direct number in case they have extended issues.	
18.	Return to the spreadsheet and enter comments into the notification.		
19.	If an order is attached to the complaint, then the EDWA employee must close out the order before they can close out the spreadsheet notification .	The order is the initial EDWA employee flush order. Sometimes you must follow up with the ORC to have the order closed.	

2. Addressing Extended Issues with Iron and Manganese

Step	Action	Comment	See
1.	If the customer reports extended issues, collect a wet chemistry sample .	Collect the sample from the hydrant or blowoff closest to the customer's property. Analyze the sample in-house for iron and manganese. This provides your baseline results. Continue flushing.	
2.	The ORC determines the appropriate amount of flushing .	Base the decision on the volume of water flushed as well as the sample's color and clarity.	
3.	After flushing is complete, collect another process control sample from the same flushing point .	If manganese sample results are less than or equal to 50% of the health advisory level (HAL) (0.15 mg/L), cease flushing. If manganese sample results are greater than 50% of the HAL (0.155 mg/L), collect an additional sample to be analyzed by an accredited laboratory. i Note: We are evaluating trigger levels for iron and manganese as part of the receivership. Levels will be adjusted as appropriate.	
4.	If the extended issue persists, the ORC schedules an internal meeting with PAAW leadership to determine the next steps.		
5.	Add the results of your review to the tracking spreadsheet .		

Troubleshooting

N/A

Documentation/Recordkeeping

An EDWA employee maintains records in the spreadsheet.

References

N/A

Review Record

Date	Version	Reviewer	Comments/Changes	Previous Replaced
04/05/24	5	B. Braun	Clarify note to court order wording.	
04/02/24	4	B. Braun	Extended Issues Fe/Mn review.	
03/30/24	3	B. Braun	Structure for Extended Issues Fe/Mn section.	
03/27/24	2	B. Braun	Notification types. Comment for team.	
03/25/24	1	T. Reed, T. Berdar	Review	

Acknowledgements

I have reviewed and approved this SOP

Area Supervisor:

Operators:

I am aware of this SOP

Sr. Supervisor:

Superintendent:

Sr. Manager:

SOP #	2499-OPERATIONS-EDWA-SOP-OPS MGMT-2	Effective	04/05/24
Task	Water Quality Notifications - General		
For Roles	Water Quality Supervisor, System Superintendent, Local Operations Supervisors for Production and Field Operations		
Site	East Dunkard Water Authority (EDWA)		
Frequency	As Needed		
Owner	Tim Berdar, Tiffany Reed		

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Overview

Use this procedure to handle general water quality notifications. This includes:

- Handling visual notifications.
- Handling non-visual notifications.
- Closing out notifications.

i Note: In accordance with the February 8, 2024, Commonwealth Court Order, Pennsylvania American Water (PAAW) is currently serving as East Dunkard Water Authority's (EDWA's) operator in responsible charge (ORC).

Background

This process starts when a customer contacts the call center with a complaint about water quality:

- The call center enters the complaint into the spreadsheet.
- The spreadsheet automatically emails a notification to all staff who handle water quality complaints.
- Staff handle the complaint based on the type of water quality issue and their job roles.

i Note: After the customer call, the EDWA employee then determines whether they create a flush order. The EDWA employee assigns the order to a crew and a T&D technician is called to investigate and possibly open a hydrant to flush the main out. If the EDWA field operations employee notices that the problem doesn't clear up, or there may be a distribution-related issue, the EDWA field operations employee notifies the superintendent.

Water Quality Notification Types and Responsibilities

Water Quality Notifications		
Type	Handled By	Comments
Visual	EDWA employee	⚠ Important: A contact attempt for all visual notifications must be made within one business day, not including weekends. If a customer requires us to contact them outside of normal business hours (i.e., weekends), the on-call Operations Field Service superintendent is responsible for contacting the customer. If the complaint is non-visual, the PAAW Water Quality (WQ) Supervisor on call will be responsible for contacting the customer. The customer can see indicators of possible water quality issues, such as: • Discolored water. • Cloudy water. • Stains on laundry. i Note: EDWA employees handle only visual water quality notifications.

Non-Visual	PAAW WQ Staff	⚠ Important: All non-visual notifications must be completed within one business day, not including weekends. If a customer requires us to contact them outside of normal business hours (i.e., weekends), the on-call PAAW WQ Supervisor is responsible for contacting the customer. Any issue that is not visual to the customer, such as: • Bitter taste. • Boil alert. • External research media stories. • Illness or LSLR Flushing Inq Notifications have been issued: An expert will attempt to contact customer within 1 to 4 hours. • Iron. • Lead. • Moving organisms. • Odor/taste. • Particles. • Slippery/slimy. • General Request Notification (ex's Annual-Detailed WQ Report, Basic WQ Summary table, FAQs) has been issued: An expert will attempt to contact customer in one business day. All non-credit-related issues: an EDWA employee handles credits, WQ handles the rest. This can also include more general inquiries, including questions on: • Water quality reports. • Any lead pipe replacement projects. i Note: The superintendent handles non-visual water quality notifications.

Safety

Reference any site-specific guidance.

JSA's

N/A

Equipment Checklist

N/A

Process

1. Handling Visual Notifications

▲ Important: All visual notifications must be contacted within one business day.

EDWA receives the notification, researches customer information, contacts the customer, and adds notes in the notification in the spreadsheet. If an order is attached, then local operations is responsible for closing the work order before the EDWA employee closes the notification.

Step	Action	Comment	See
1.	The EDWA Team receives an alert via email (or phone) .	The EDWA employee receives the email (or call) first. They will determine whether a flush order is needed. They will not automatically schedule a flush order for a particle and stained laundry notification. If needed, the EDWA employee schedules the order within 30 minutes and responds to the complaint.	
2.	The EDWA Team performs the following steps before calling the customer back.		
3.	Search the customer's area for alerts.	Reviewing the area's alert history allows us to better understand the complaint.	
4.	Select the following for the customer's location: • Street • Municipality.		
5.	Review your search results .		
6.	From the notification, copy the customer's account number .	Entering the account number allows you to access the account notes for that premise.	
7.	Review the customer's account notes .	Check older notes. Look for previous similar complaints. For example: • Is this an ongoing issue? • Does the customer submit unjustified or internal complaints?	

8.	Call the customer to make sure: • The issue has been resolved. • The customer has no extended issues.	We try to call back within the next business day. Extended issues means that either the issue persists after a flush or a new issue appears. If a customer requires us to contact them outside of normal business hours (i.e., weekends), the PAAW WQ Supervisor on call is responsible for contacting the customer. If the complaint is non-visual, the PAAW WQ employee on call will be responsible for contacting the customer. i Note: The EDWA employee may be delayed in completing the investigative flush in the appropriate timeline. If you call the customer before the flush is completed: • Advise the customer that we will be out to flush (if we are flushing) the area for them or inform them if there is a main break in their area. • Give the customer your direct number in case they have extended issues.	
9.	Return to the spreadsheet and enter comments into the notification.		
10.	If an order is attached to the complaint, then the EDWA employee or PAAW WQ must close out the order before the EDWA employee can close out the spreadsheet notification .	The order is the initial EDWA representative flush order. Sometimes you must follow up with the superintendent to have the order closed.	

2. Non-Visual Notifications

⚠ Important: PAAW WQ Supervisors are expected to make initial contact with the customer within one business day. If a customer requires us to contact them outside of normal business hours (i.e., weekends), then the PAAW WQ Supervisor on call will be responsible for contacting the customer.

PAAW WQ handles the customer contact and review process.

Step	Action	Comment	See
1.	PAAW WQ supervisors or their delegate make the initial call .	The same circumstances apply: • Check notes. • Call customer. • The PAAW WQ Team updates the notification in the spreadsheet. i Note: PAAW WQ supervisors or their delegates call the customers for non-visual notifications	
2.	PAAW WQ managers handle any further escalations .	For example, an escalation may occur when the customer is irate, and has not received a response from the assigned PAAW WQ supervisor or their delegate.	

Troubleshooting

N/A

Documentation/Recordkeeping

An EDWA employee maintains records in the spreadsheet.

References

N/A

Review Record

Date	Version	Reviewer	Comments/Changes	Previous Replaced
04/05/24	3	B. Braun	Clarify note to court order wording.	
03/27/24	2	B. Braun	Update WQ Notifications, Visual section.	
03/25/24	1	T. Reed, T. Berdar	Review.	

Acknowledgements

I have reviewed and approved this SOP

Area Supervisor:

Operators:

I am aware of this SOP

Sr. Supervisor:

Superintendent:

Sr. Manager:

Application of Pennsylvania-American Water Company for approval of the right to: (1) acquire substantially all of the East Dunkard Water Authority's assets, properties and rights related to its water system to Pennsylvania-American Water Company, and (2) begin to offer, render, furnish or supply water service to the public in Dunkard, and portions of Monongahela, Greene, Cumberland, Perry, and Whiteley Townships, Greene County, Pennsylvania

Docket No. A-2024-3049759

PAWC's Responses to TUS Set I

A-23. The Application's Appendix S contained a Public Water Supply Permit No. 3022506 dated 1/19/2024, that was located under the heading with an Issue Date: 6/1/2019. Please verify the correct date for Permit No. 3022506.

Response: The date of 6/1/2019 on the 'heading' page for the Water Supply Permit No. 3022506 in the Application's Schedule S is incorrect. The correct date of Permit No. 3022506 is 1/19/2024.

Responsible Witness: **Daniel J. Hufton, P.E. – Manager, Engineering – Business Development
Pennsylvania-American Water Company**

Date: **July 25, 2024**

Application of Pennsylvania-American Water Company for approval of the right to: (1) acquire substantially all of the East Dunkard Water Authority's assets, properties and rights related to its water system to Pennsylvania-American Water Company, and (2) begin to offer, render, furnish or supply water service to the public in Dunkard, and portions of Monongahela, Greene, Cumberland, Perry, and Whiteley Townships, Greene County, Pennsylvania

Docket No. A-2024-3049759

PAWC's Responses to TUS Set I

A-24. Please identify the permits, easements, and right-of-way that are required to construct, operate, and maintain the EDWA System, quantify their estimated costs, and identify the entity responsible for obtaining each permit, easement, or right-of-way.

Response: Please refer to Appendix S of our Application for copies of the NPDES and Public Water Supply Permits. Additionally, please refer to Schedule 4.1(l)(ii) for a list of easements and rights-of-ways EDWA provided to construct, operate and maintain the water system. If additional necessary permits, easements or rights-of-way are identified by PAWC during the course of the Receivership, PAWC, as Receiver will obtain on behalf of EDWA and transfer to PAWC at closing. At this time, none have been identified along with associated costs.

Responsible Witness: Michael Salvo, Director – Business Development
Pennsylvania-American Water Company

Date: July 25, 2024

Application of Pennsylvania-American Water Company for approval of the right to: (1) acquire substantially all of the East Dunkard Water Authority's assets, properties and rights related to its water system to Pennsylvania-American Water Company, and (2) begin to offer, render, furnish or supply water service to the public in Dunkard, and portions of Monongahela, Greene, Cumberland, Perry, and Whiteley Townships, Greene County, Pennsylvania

Docket No. A-2024-3049759

PAWC's Responses to TUS Set I

A-25. The Amended APA's Section 4.1(g) referenced a Section 0 that does not appear to be included in the Amended APA. Please clarify this apparent discrepancy and specify the corrected reference section.

Response: It was intended by the parties to reference Section 1.5 - Accounts Receivable, not Section O.

Responsible Witness: **Michael Salvo, Director – Business Development
Pennsylvania-American Water Company**

Date: **July 25, 2024**

Application of Pennsylvania-American Water Company for approval of the right to: (1) acquire substantially all of the East Dunkard Water Authority's assets, properties and rights related to its water system to Pennsylvania-American Water Company, and (2) begin to offer, render, furnish or supply water service to the public in Dunkard, and portions of Monongahela, Greene, Cumberland, Perry, and Whiteley Townships, Greene County, Pennsylvania

Docket No. A-2024-3049759

PAWC's Responses to TUS Set I

A-26. **The Amended APA's Section 4.1(t) referenced a Schedule 4.1(t) that does not appear to be included in the Amended APA. Instead, it appears that references to Schedule 4.1(t) are intended to reference the APA's Schedule 4.1(u) – Extension Deposit Agreements. Please confirm that the Amended APA's references to Schedule 4.1(t) are intended to reference the Amended APA's Schedule 4.1(u).**

Response: PAWC is confirming the reference to Schedule 4.1(t) in Section 4.1 (t), Amended Appendix A, should be reference to Schedule 4.1(u).

Responsible Witness: **Michael Salvo, Director – Business Development
Pennsylvania-American Water Company**

Date: **July 25, 2024**

Application of Pennsylvania-American Water Company for approval of the right to: (1) acquire substantially all of the East Dunkard Water Authority's assets, properties and rights related to its water system to Pennsylvania-American Water Company, and (2) begin to offer, render, furnish or supply water service to the public in Dunkard, and portions of Monongahela, Greene, Cumberland, Perry, and Whiteley Townships, Greene County, Pennsylvania

Docket No. A-2024-3049759

PAWC's Responses to TUS Set I

A-27. The Amended APA's Schedule 4.1(q), Note (1), indicated that EDWA has applied to DEP to transfer the permits issued to East Dunkard Water Association into the name of EDWA. Please provide copies of the permit transfer applications submitted by EDWA to DEP for the noted permits in the aforementioned schedule.

Response: The Amended APA's Schedule 4.1(q) - Permits, Note (1) references those permits that the Authority was in the process of applying to the PADEP for transfer of those permits into their name (East Dunkard Water Authority) at the time of execution of the APA.

The PADEP has since issued Water Supply Operations Permit No. 3023503-T1 to East Dunkard Water Authority on 1/2/2024 that covers the transfer of the water supply permits formerly held by the East Dunkard Water Association. A copy of the issued Water Supply Operations Permit No. 3023503-T1 is included in Appendix S of the Application.

Responsible Witness: Daniel J. Hufton, P.E. – Manager, Engineering – Business Development
Pennsylvania-American Water Company

Date: July 25, 2024

Application of Pennsylvania-American Water Company for approval of the right to: (1) acquire substantially all of the East Dunkard Water Authority's assets, properties and rights related to its water system to Pennsylvania-American Water Company, and (2) begin to offer, render, furnish or supply water service to the public in Dunkard, and portions of Monongahela, Greene, Cumberland, Perry, and Whiteley Townships, Greene County, Pennsylvania

Docket No. A-2024-3049759

PAWC's Responses to TUS Set I

A-28. The Amended APA's Schedule 4.1(q), Note (2), indicated that EDWA is in the process of applying for a DEP Operations Permit. Please provide a copy of the Operations Permit application submitted by EDWA to DEP.

Response: The Amended APA's Schedule 4.1(q) - Permits, Note (2) references those construction permits that the Authority was in the process of applying to the PADEP for an Operations Permit.

The construction permits referenced by Note (2) in the Amended APA's Schedule 4.1(q) have since been superseded with the Water Supply Operations Permit No. 3022506 issued by the PADEP on 1/19/2024. A copy of the issued Water Supply Operations Permit No. 3022506 is included in Appendix S of the Application.

Responsible Witness: **Daniel J. Hufton, P.E. – Manager, Engineering – Business Development
Pennsylvania-American Water Company**

Date: **July 25, 2024**

Application of Pennsylvania-American Water Company for approval of the right to: (1) acquire substantially all of the East Dunkard Water Authority's assets, properties and rights related to its water system to Pennsylvania-American Water Company, and (2) begin to offer, render, furnish or supply water service to the public in Dunkard, and portions of Monongahela, Greene, Cumberland, Perry, and Whiteley Townships, Greene County, Pennsylvania

Docket No. A-2024-3049759

PAWC's Responses to TUS Set I

A-29. Please provide a breakdown of the specific components of the EDWA System, including the EDWA WTP, and costs that were paid for by grant or other sources and may be considered contributions-in-aid of construction.

Response: EDWA received a PENNVEST grant of \$2,204,025 and loan of \$6,073,194 in 2011 to fund system improvements. The project description on the PENNVEST website states that these funds were used for "Upgrade of the existing water treatment plant including replacement of water intake pumps, repair of the primary clarifier, replacement of existing filters with a rapid sand filter system, along with construction three new water storage tanks, as well as the replacement of approximately 40,000 linear feet of waterlines in various areas of the system".

In 2023, EDWA received additional grant funds under a Community Development Block Grant (CDBG). A Subrecipient Agreement between EDWA and Greene County was executed on September 7, 2023, for a FFY 2019 CDBG of \$1,939,341. This CDBG is being used to fund several ongoing projects described below:

Filter Rebuild Project

This project is required under paragraph 7(e) of the Court Receivership Order. The project was permitted by DEP under Water Supply Permit No. 3023509MA issued on December 11, 2023. The project's scope includes replacing the filter media, filter backwash aeration piping, and filter backwash underdrain nozzles in each of the four filter cells. The project construction started on March 11, 2024, and was completed on May 28, 2024. The Department issued the final Operations Permit for the reconstructed filters on June 10, 2024.

Distribution System Mapping & Improvements Project

This project addresses one of the recommendations in the Authority's 2020 Distribution System CAP. The project includes the preparation of updated distribution system mapping using field-verified information and the design and installation of additional system valves, blowoffs and/or hydrants to improve leak isolation and flushing capabilities. This project is in the design phase.

Application of Pennsylvania-American Water Company for approval of the right to: (1) acquire substantially all of the East Dunkard Water Authority's assets, properties and rights related to its water system to Pennsylvania-American Water Company, and (2) begin to offer, render, furnish or supply water service to the public in Dunkard, and portions of Monongahela, Greene, Cumberland, Perry, and Whiteley Townships, Greene County, Pennsylvania

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Phase II Plant Improvements Project

This project addresses many design deficiencies at the plant identified by DEP in previous inspection reports, enforcement orders, Filter Plant Performance Evaluations and Sanitary Surveys. The current scope includes the following improvements:

- Replace all water quality compliance analyzers (chlorine residual, turbidity, pH).
- Add individual filter flow meters (influent, effluent, filter-to-waste).
- Replace filter valve controllers.
- Install new entry point water quality analyzers and an automated control valve on the influent to the Griffin Tank that will automatically shut down if disinfection treatment is compromised.
- Install by-pass piping to allow the Griffin Tank to be taken out of service for maintenance.
- Laboratory renovations (permanent fume hood, chemical containment cabinets).
- Replace lagoon sampling access ramp with unit meeting all safety standards.
- Replace failed VFDs and add surge protection at two pump stations (Davistown, Rocky Hollow).
- Wiring and programming to tie new equipment into the High Tide SCADA system.

A design report and permit application were submitted to DEP for this Phase II Plant Improvements project. The Department approved the project in Public Water Supply Construction/Operations Permit No. 3024505MA dated June 18, 2024. The next step in the process will be to bid out the project to qualified contractors.

Responsible Witness: **Daniel J. Hufton – Manager, Engineering – Business Development
Pennsylvania-American Water Company**

Date: **July 25, 2024**

Application of Pennsylvania-American Water Company for approval of the right to: (1) acquire substantially all of the East Dunkard Water Authority's assets, properties and rights related to its water system to Pennsylvania-American Water Company, and (2) begin to offer, render, furnish or supply water service to the public in Dunkard, and portions of Monongahela, Greene, Cumberland, Perry, and Whiteley Townships, Greene County, Pennsylvania

Docket No. A-2024-3049759

PAWC's Responses to TUS Set I

A-30. Please provide a breakdown of the anticipated cost of PAWC-funded facilities, by major plant category, including a description, year, estimated costs, and sources of funds (i.e., debt or equity), separately for the EDWA System and EDWA WTP for the next 5 years.

Response: The Company's estimated 5-year capital improvement plan from the acquisition due diligence efforts completed in 2022-2023 is provided in **A-30_Attachment**. The improvements will be initially funded by a mixture of short-term debt and internally generated funds, and later will be converted to long-term financing consisting of equity and long-term debt.

Responsible Witness: Daniel J. Hufton, P.E. – Manager, Engineering – Business Development
Pennsylvania-American Water Company

Date: July 25, 2024

Investment Project (IP) Budget Estimate

	2024	2025	2026	2027	2028	
	Year 1	Year 2	Year 3	Year 4	Year 5	Total
IP Level CAPEX						
Distribution System						
Distribution system CAP implementation		\$ 308,944	\$ 308,944		\$	617,888
Priority main replacements	\$ 300,000	\$ 875,000	\$ 150,000		\$	1,325,000
Remote Stations (Tanks/Boosters) SCADA Replacement			\$ 1,080,000		\$	1,080,000
Production facilities						
Plant SCADA replacement	\$ 765,000				\$	765,000
Filter Corrective Action Plan improvements	\$ 250,000				\$	250,000
Clarifier Corrective Action Plan improvements	\$ 250,000				\$	250,000
Chemical feed system T2 improvements & CL2 gas elimination			\$ 1,000,000	\$ 1,000,000	\$	2,000,000
Plant intake improvements		\$ 162,500	\$ 162,500		\$	325,000
Install permanganate feed system		\$ 125,000	\$ 125,000		\$	250,000
Total Yearly IP CAPEX	\$ 1,565,000	\$ 1,471,444	\$ 2,826,444	\$ 1,000,000	\$ -	\$ 6,862,888

Recurring Project (RP) Budget Estimate

	2024	2025	2026	2027	2028	
	Year 1	Year 2	Year 3	Year 4	Year 5	Total
RP Level CAPEX						
A - Mains - New						
B - Mains - Replaced / Restored				\$ 1,500,000	\$ 1,500,000	\$ 3,000,000
C - Mains - Unscheduled	\$ 75,000	\$ 75,000	\$ 50,000	\$ 40,000	\$ 40,000	\$ 280,000
D - Mains - Relocated		\$ 170,000		\$ 120,000		\$ 290,000
E - Hydrants, Valves, and Manholes - New	\$ 35,000	\$ 35,000	\$ 35,000	\$ 40,000	\$ 40,000	\$ 185,000
F - Hydrants, Valves, and Manholes - Replaced	\$ 75,000	\$ 75,000	\$ 75,000	\$ 75,000	\$ 75,000	\$ 375,000
G - Services and Laterals - New	\$ 15,000	\$ 15,000	\$ 15,000	\$ 15,000	\$ 15,000	\$ 75,000
H - Services and Laterals - Replaced	\$ 35,000	\$ 35,000	\$ 35,000	\$ 35,000	\$ 35,000	\$ 175,000
I - Meters - New	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 5,000
J - Meters - Replaced				\$ 90,000	\$ 90,000	\$ 180,000
K - ITS Equipment and Systems	\$ 20,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 24,000
L - SCADA Equipment and Systems		\$ 25,000	\$ 25,000	\$ 25,000	\$ 25,000	\$ 100,000
M - Security Equipment and Systems		\$ 260,000				\$ 260,000
N - Offices and Operations Centers		\$ 70,000				\$ 70,000
O - Vehicles	\$ 315,000					\$ 315,000
P - Tools and Equipment	\$ 165,500	\$ 127,000	\$ 71,000	\$ 71,000	\$ 71,000	\$ 505,500
Q - Process Plant Facilities and Equipment	\$ 1,046,125	\$ 500,000				\$ 1,546,125
R - Capitalized Tank Rehab & Painting	\$ 98,000	\$ 257,300	\$ 398,800	\$ 348,500	\$ 525,000	\$ 1,627,600
S - Engineering Studies	\$ 120,050	\$ 200,000				\$ 320,050
Total Yearly RP CAPEX	\$ 2,000,675	\$ 1,846,300	\$ 706,800	\$ 2,361,500	\$ 2,418,000	\$ 9,333,275
Total Yearly IP and RP CAPEX	\$ 3,565,675	\$ 3,317,744	\$ 3,533,244	\$ 3,361,500	\$ 2,418,000	\$ 16,196,163

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Docket No. A-2024-3049759

PAWC's Responses to TUS Set I

A-31. EDWA's June 29, 2023 Meeting Minutes included in the Application's Appendix E appears to indicate that several EDWA customers paid water tapping fees. Also, 53 Pa.C.S. § 5607(d)(24)(ii) requires municipal authorities to have available for public inspection a detailed itemization of all calculations showing the maximum fees allowable for each part of the tapping fee and the manner in which the fees were determined (Tapping Fee Study). Please provide a copy of EDWA's most recent Tapping Fee Study.

Response: There is no known Tapping Fee Study that exists per PAWC's file review as well as requesting from EDWA's employees.

Responsible Witness: Michael Salvo, Director – Business Development
Pennsylvania-American Water Company

Date: July 25, 2024

VERIFICATION

I, Stacey Gress, hereby state that the facts above set forth above in the attached Data Responses are true and correct to the best of my knowledge, information and belief, and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements made herein are made subject to the penalties of 18 Pa. Cons. Stat. §4904 relating to unsworn falsification to authorities.



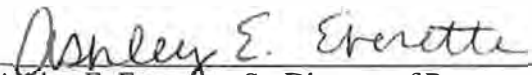
Stacey Gress, Director Rates and Regulatory
American Water Works Service Company

Dated: July 25, 2024

VERIFICATION

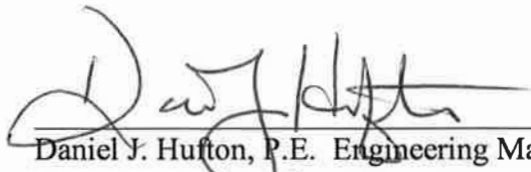
I, Ashley E. Everette, hereby state that the facts above set forth above in the attached Responses are true and correct to the best of my knowledge, information and belief, and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements made herein are made subject to the penalties of 18 Pa. Cons. Stat. §4904 relating to unsworn falsification to authorities.

July 25, 2024
Date


Ashley E. Everette, Sr. Director of Rates and Regulatory
American Water Works Service Company

VERIFICATION

I, Daniel J. Hufton hereby state that the facts above set forth above are true and correct to the best of my knowledge, information and belief, and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements made herein are made subject to the penalties of 18 Pa. Cons. Stat. §4904 relating to unsworn falsification to authorities.



Daniel J. Hufton, P.E. Engineering Manager
Pennsylvania-American Water Company

Dated: July 25, 2024

VERIFICATION

I, Michael Salvo hereby state that the facts above set forth above are true and correct to the best of my knowledge, information and belief, and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements made herein are made subject to the penalties of 18 Pa. Cons. Stat. §4904 relating to unsworn falsification to authorities.

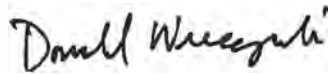


Michael Salvo, Director, Business Development
Pennsylvania-American Water Company

Dated July 25, 2024

VERIFICATION

I, Don Wieczenski hereby state that the facts above set forth above in the attached Responses are true and correct to the best of my knowledge, information and belief, and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements made herein are made subject to the penalties of 18 Pa. Cons. Stat. §4904 relating to unsworn falsification to authorities.



Don Wieczenski - Director, Business Development
Pennsylvania-American Water Company

Dated: July 25, 2024