LABORATORY REPORTING INSTRUCTIONS
for

DISINFECTANT RESIDUALS AND LOG INACTIVATION OF GIARDIA AND VIRUSES

Technical Guidance Number
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DEPARTMENT OF ENVIRONMENTAL PROTECTION

DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Safe Drinking Water

DOCUMENT NUMBER: XXX-XXXX-XXX

TITLE: Laboratory Reporting Instructions for Disinfectant Residuals and Log Inactivation of Giardia and Viruses

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 Title 25 *Pa. Code* Chapter 109

POLICY: It is the policy of the Department of Environmental Protection (DEP) to provide laboratory directors of accredited laboratories, individuals certified to perform analysis, and public water supply personnel with the information necessary to properly report disinfectant residual monitoring data under the safe drinking water program.

PURPOSE: The purpose of this document is to establish uniform instructions and protocol for implementing the drinking water reporting requirements for disinfectant residuals.

APPLICABILITY: This guidance will apply to all accredited laboratories and public water systems that are required to submit disinfectant residual monitoring results to DEP.

DISCLAIMER: The policies and procedures outlined in this guidance document 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. There is no intent on the part of DEP to give the rules in these policies 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: XX pages

DEFINITIONS: See Title 25 *Pa. Code* Chapter 109

TABLE OF CONTENTS

SECTION 1: INTRODUCTION

The *Laboratory Reporting Instructions for Disinfectant Residuals and Log Inactivation of Giardia and Viruses* technical guidance provides instructions for reporting disinfectant residuals and log inactivation of Giardia and viruses. The *Pennsylvania (PA) Filter Rule (*based on the Final Federal Surface Water Treatment Rule), the *Disinfectants/Disinfection Byproducts Rule* (D/DBPR), the *Pennsylvania (PA) Groundwater Rule* (GWR) and *Disinfection Requirements Rule* (DRR) requires public drinking water systems to monitor and report the disinfectant residual results to the Department of Environmental Protection (DEP). DRR also requires public drinking water systems with surface water or groundwater under the direct influence of surface water (GUDI) to calculate log inactivation of Giardia and viruses (if disinfectant other than chlorine is used) and report to the Department of Environmental Protection (DEP).

BACKGROUND

The PA Filter Rule, D/DBPR, GWR and DRR establish treatment technique requirements for pathogenic bacteria, viruses and protozoan cysts and minimum residual disinfectant levels at the entry point and/or in the distribution system to protect consumers from adverse health effects by ensuring properly treated water. Maximum residual disinfectant levels (MRDLs) for total or free chlorine and chlorine dioxide are also established to minimize disinfection byproduct formation.

PA Filter Rule applies to public water systems (PWSs) with surface water or GUDI sources. D/DBPR applies to community and non-transient noncommunity PWSs which use chlorine, chloramines or chlorine dioxide. GWR applies to all community and any non-community PWSs providing 4-log treatment of viruses for groundwater sources. PWSs providing 4-log treatment of viruses, via means other than chlorine, have alternative minimum standards established for the entry point. DRR applies to: all community PWSs, all non-transient noncommunity PWSs using chlorine disinfectant and transient noncommunity PWSs with filtration of a surface or GUDI source and with 4-log disinfection of a groundwater source.

Reader's Note: Laboratory reporting instructions for the monitoring/reporting requirements for the DBPs/precursors listed below, and details about treatment techniques are addressed in the *Laboratory Reporting Instructions for Disinfection Byproducts and Precursors* technical guidance manual: Alkalinity, Bromate, Chlorite, Dissolved Organic Carbon, Haloacetic Acids, Total Organic Carbon, Total Trihalomethanes, and UV_{254}. Also, turbidity reporting requirements under the *PA Filter Rule* are not included in this technical guidance.
The technical guidance manuals are available on the Department of Environmental Protection (DEP) website at http://www.depgreenport.state.pa.us/elibrary/search. Enter "*Laboratory Reporting Instructions*" into the document name search.

GENERAL MONITORING AND REPORTING INFORMATION

Drinking water analysis results are entered into the *Pennsylvania Drinking Water Information System (PADWIS)* via *Drinking Water Electronic Reporting (DWELR)*. PADWIS is a computerized data management system used by DEP to track drinking water monitoring results. More instructions about reporting through DWELR are outlined in Section 3: Electronic Assistance Tools in this technical guidance manual and on DEP's website at http://www.dep.pa.gov/, (enter "DWELR").

Please read the instructions in this technical guidance manual thoroughly. Failure to monitor, analyze and/or report analytical results correctly may result in the water supplier incurring a violation of the Safe Drinking Water Regulations. Two different DWELR forms (SDWA-S and SDWA-1) are used to report disinfectant residuals electronically. Correct use of the forms is explained in Section 4: Disinfectant Residuals in this technical guidance manual.

The reporting instructions in this manual pertain to:

- performance monitoring for EP disinfectant residuals for PWSs using filtered surface water or filtered GUDI sources
- MRDL distribution monitoring requirements
- the monitoring for entry point disinfectant residuals for PWSs providing 4-log inactivation of viruses for groundwater sources
- monitoring requirements of distribution disinfection residuals and reporting of log inactivation of Giardia and viruses.

The monitoring and reporting requirements described in this manual are in addition to other routine monitoring and reporting requirements for PWSs, and do not supersede other requirements.

A summary of reporting requirements for the PA Filter Rule, D/DBP, GWR and DRR is shown in Table 1: Performance Level Disinfectant Residuals General Monitoring and Reporting Requirements.

Table 1: Performance Level General Monitoring and Reporting Requirements

Location	PA Filter Rule	Disinfectant/Disinfection Byproducts Rule	PA Ground Water Rule	Disinfection Requirements Rule
Entry Point	Residual disinfectant	Residual disinfectant	Residual disinfectant	Log inactivation Giardia/viruses
Distribution System	Residual disinfectant	Residual disinfectant	Not applicable	Residual disinfectant

Refer to Section 8: Required Number of Monitoring Samples and Section 9: Rules for Disinfectant Monitoring and Reporting in this manual for more information about the monitoring and reporting requirements. In addition, for a more detailed description of the PWS requirements refer to 25 *Pa. Code* Chapter 109 Safe Drinking Water Regulations, available on the web at www.pacode.com.

SECTION 2: RESPONSIBILITIES OF THE LABORATORY

Under the provisions of Title 25 *Pa. Code* Chapter 109, Safe Drinking Water Regulations, and the Pennsylvania Safe Drinking Water Act, it is the responsibility of the laboratory to:

1. Submit the results of analyses performed by the laboratory under the Safe Drinking Water Regulations to DEP in an electronic format acceptable to DEP, using a secure computer application provided by DEP, as per 25 *Pa. Code* §109.810(a).

    a) In the event of a DEP computer application failure, DEP will notify the laboratory of an alternate reporting method.

    b) If a laboratory is unable to submit data electronically, due to circumstances beyond its control, the laboratory must notify DEP prior to the applicable reporting deadline. If DEP determines that the circumstances were beyond the control of the laboratory, DEP will specify a temporary, alternate reporting method the laboratory must use to meet the reporting deadline.

2. Report the results within either the first 10 days following the month that the result is determined or the first 10 days following the end of the required monitoring period as stipulated by DEP, whichever is shorter, as per 25 *Pa. Code* §109.810(a)(1). ***Failure to report as required will result in the water supplier incurring a violation for failure to monitor.***

3. Obtain and maintain DEP and County Health Department (CHD) current after-hours emergency response telephone numbers for each applicable DEP regional and CHD office.

    DEP District Office and CHD contact information, by county, can be found by searching for document 3930-FM-BSDW0560 in eLibrary at the following link: http://www.depgreenport.state.pa.us/elibrary/Search

4. Establish and maintain a standard operating procedure to provide the information needed to report a violation listed below to DEP. This procedure should be verified at least annually.

5. Under Pennsylvania Chapter 25 *Pa. Code* Chapters 109 and 252, notify customers served by the laboratory within 72 hours of the following:

    a) Failure to renew or DEP denial of renewal of existing accreditation for a category of laboratory accreditation.

    b) Revocation of accreditation by DEP for the environmental laboratory conducting testing or analysis of drinking water under *25 Pa. Code* Chapter 109.

Whenever a MRDL is exceeded or a result triggers the collection of a check or confirmation sample, including when a distribution chlorine residual is <0.15 mg/L, according to Title 25 *Pa. Code* §109.810(b), the accredited laboratory must:

1. Notify the public water supply (PWS) by telephone within 1 hour of the laboratory's determination. If the supplier cannot be reached within 1 hour, notify DEP by telephone within

2 hours of the determination. If the PWS is regulated under a CHD office, the appropriate Health Department Office shall be notified. If it is necessary for the laboratory to contact DEP or CHD after routine business hours, the laboratory must contact the appropriate agency's after-hours emergency response telephone number. If the appropriate DEP or CHD emergency number cannot be reached, the laboratory must notify the appropriate DEP regional office by telephone within 1 hour of the beginning of the next business day.

The laboratory must provide information regarding the occurrence, the name of a laboratory contact person and the telephone number where that individual may be reached in the event further information is needed. The information regarding the PWS relayed to DEP or the CHD, must include, as per 25 *Pa. Code* §109.810(b)(1)(ii), but is not limited to:

- The public water system's identification number (PWSID).
- Public water system's name.
- Parameter (contaminant/disinfectant residual) involved in the exceedance.
- Level of the parameter (contaminant/disinfectant residual) found.
- Where the sample was collected.
- Date and time that the sample was collected and analyzed.
- Name and identification number of the accredited laboratory.
- Name and telephone number of a contact person at the laboratory.
- Steps the laboratory took to contact the PWS before calling DEP.

2. Notify the appropriate DEP district office or CHD in writing within 24 hours of the determination, as per 25 *Pa. Code* §109.810(b)(2). District and CHD addresses by county can be found within DEP document number 3930-FM-BSDW0061, found in eLibrary at http://www.depgreenport.state.pa.us/elibrary/ and fax to the local DEP or CHD office.

   With the permission of the district office, *the form may be sent via email to the local DEP district office.*

Note: Proper reporting and notification of analytical results to DEP is required. Failure to properly report results may lead to the revocation of accreditation. An effective surveillance program requires prompt follow-up for MRDL and check sample monitoring to protect public health. Your assistance is critical regarding accurate and prompt data reporting.

Information recording who collected and analyzed the samples is to be documented and retained by the laboratory, as per 25 *Pa. Code* §252.401. For the samples that were collected by water system personnel rather than laboratory personnel, the laboratory must retain a copy of the chain of custody.

Additionally, laboratories must retain records, including original handwritten data that would allow reconstruction of all laboratory activities associated with the testing or analysis of environmental samples for a minimum of 5 years and as required per 25 *Pa. Code* §109.701 and §252.706. The records should be complete enough so that assessors can reconstruct the entire analysis and all the activities related to generating the final result using the laboratory's records.

Records of analyses must also be kept by the PWSs as required per 25 *Pa. Code* §109.701.

SECTION 3: ELECTRONIC ASSISTANCE TOOLS

The following electronic assistance tools are available from DEP:

SUBSECTION A: DRINKING WATER ELECTRONIC LABORATORY REPORTING (DWELR)

All PWSs and accredited laboratories must use DWELR to report electronically, according to 25 *Pa. Code* §§109.701(j) and 109.810. DWELR is a DEP GreenPort web application for PWSs and accredited laboratories to upload sample files and/or manually enter sample results using a web screen entry form. To access DWELR, you need to have a DEP GreenPort user profile. If you do not already have a GreenPort user profile, go to GreenPort: www.depgreenport.state.pa.us and "click here to self-register." Please contact the DEP GreenPort Helpdesk at 717-787-HELP, if you need help setting up a user account. The DWELR registration form and instructions are available online at www.depgreenport.state.pa.us/elibrary/Search. Search "*DWELR*". DEP's Bureau of Safe Drinking Water, Pennsylvania Drinking Water Information System (PADWIS) section may be reached at 717-772-4018 or ra-padwis@pa.gov for more information about DWELR.

DWELR's features allow PWSs or accredited laboratories to:

- Submit data via either upload or data entry.
- Preview the data entered. A DWELR user can *view* all data submitted for the PWS(s) the user represents, regardless of who submitted it, but can only *edit* the data submitted by the user.
- Submit the data ***until the 10th (until 11:59)*** of the month. On the 11th of each month, all data is cleared from DWELR and passed to PADWIS for monthly compliance processing.
- View error reports. Upon submittal, the data is checked, and an error report is generated.
- Correct data and resubmit until the 10th of the month.

Detailed instructions are contained in the DWELR web application. Entities choosing to upload their data can retrieve the data formats from within DWELR. Accredited laboratories are obligated to provide the laboratory results to their client (PWS.) The format used to report these results is a decision to be determined mutually by the laboratory and the client.

NOTE: DWELR only stores the data temporarily. While the data remains in DWELR, it can be viewed by the submitting lab and the water system. The data is not available to be viewed by other labs or water systems. After midnight on the 10th of the month (11th), the data is moved from DWELR to PADWIS. Data stored in PADWIS includes drinking water system information, laboratory accreditation information and drinking water sample data.

When a lab submits data, a validation routine is run on the data. This routine includes checks for valid water system and lab ID numbers, analyte and method codes, along with lab accreditation status. Results that are invalid are displayed on the *Error Report* screen. Users should make necessary corrections to the data on this screen and resubmit the records. The routine will be run every time a user submits or re-submits data. Email notifications will be sent to users if they have any uncorrected errors in their data on the 1st, 5th and 9th of every month. The submitting lab is responsible for making any corrections that are necessary.

On the 11th of the month, all data is cleared from DWELR and passed to PADWIS for monthly compliance processing. Sample results, without errors, entered on or before the 10th of the month will be

included in the current reporting period. Sample results entered on or after the 11th of the month will be included in the next reporting period and may result in late reporting violations. After sample results are in PADWIS, they are viewable online through DWRS. Please note: there may be a 2-day lag between when the data are removed from DWELR and when they are available in DWRS.

SUBSECTION B: DWRS AND CONSUMER CONFIDENCE REPORTING SYSTEM

DEP provides the following assistance tools, which can be found on the DEP website at www.drinkingwater.state.pa.us:

- **Drinking Water Reporting System (DWRS)**: Provides dynamic reports on *inventory* and *sample* information for water systems from PADWIS. Instructions on how to use DWRS can be accessed from the DEP webpage.
- **Consumer Confidence Reporting System**: Provides *detection* and *violation* information from PADWIS to assist community water systems with the preparation of the annual Consumer Confidence Reports.

SECTION 4: DISINFECTANT RESIDUALS

Regulated Disinfectants:

- Chlorine
- Chloramines
- Chlorine Dioxide

Disinfectant residuals reporting requirements and the corresponding forms are listed in the following table. Disinfectant residual data is reported ***monthly***, by the 10th of the following month. Note that Chloramine is reported as Total Chlorine.

TABLE 2: DEP DWELR REPORTING FORMS FOR DISINFECTANT RESIDUALS DATA

Form	***Public Water System***	***Reporting Requirements and Purpose***
SDWA-S	PWSs using chlorine dioxide	Report the number of days that chlorine dioxide was used at each entry point.
SDWA-1	PWSs using surface water, GUDI sources and groundwater sources with 4-log inactivation of viruses	Report entry point disinfectant residual results (free chlorine or chloramines-as total chlorine) Report all weekly distribution chlorine residual results.
	PWSs using chlorine dioxide	Report all entry point chlorine dioxide residual results. Report all distribution system chlorine dioxide residual results.
Key: GUDI = groundwater under the direct influence of surface water		

The MRDL in the drinking water is the level of a disinfectant measured in the distribution system and entry point that may not be exceeded without an unacceptable possibility of adverse health effects. The MRDLs for regulated disinfectants, as incorporated under 25 *Pa. Code* §109.202(a)(2), are as follows:

- The MRDL for chlorine and chloramines is 4.0 milligrams per liter (mg/L) as chlorine (Cl_2).
- The MRDL for chlorine dioxide (ClO_2) is 0.8 mg/L as ClO_2.

EPA specifically allows short-term exceedances of chlorine and chloramines (reported as total chlorine) MRDLs to control microbiological contamination problems such as coliforms. These situations may include instances of cross connection contaminations, floods and other emergencies. This does not apply to the chlorine dioxide MRDL. For detailed information on monitoring requirements, see Section 9 in this manual.

Systems that obtain finished water from another PWS must monitor for disinfectant residuals in the distribution system, per 25 *Pa. Code* §109.301(13) as follows:

- For chlorine when the selling system uses either chlorine, chloramines, or chlorine dioxide, or the purchasing system treats the water with chlorine or chloramines; and

- For chlorine dioxide when the purchasing system also treats the water with chlorine dioxide.

Specific Reporting Requirements for PWSs with Filtered Surface Water or GUDI Sources, per 25 *Pa. Code* §109.301(1)(i)(D):

PWSs with filtered surface water or GUDI sources are required to continuously monitor and record the residual disinfectant concentration of the water being supplied to the distribution system. The disinfectant residual must be at least 0.20 mg/L as measured at the entry point.

For entry point disinfectant residual, report: date, time, and the lowest value each day the residual disinfectant concentration remains equal to or greater than the required minimum (0.20 mg/L); the initial date, time, and value for each occurrence that the residual disinfectant concentration is less than the required minimum, and the subsequent date, time, and value that the residual concentration is equal to or greater than the required minimum; and the date the entry point is not in operation.

If the continuous monitoring or recording equipment fails, the water supplier may, upon notification of DEP, substitute grab sampling or manual recording every 4 hours in lieu of continuous monitoring/recording. Grab sampling or manual recording may not be substituted for longer than 5 working days after the equipment fails.

Specific Reporting Requirements for PWSs Providing 4-log Inactivation of Viruses for Groundwater Sources, per 25 *Pa. Code* §109.1305(a):

PWSs, which provide 4-log inactivation of viruses for groundwater sources and serve more than 3,300 persons, are required to continuously monitor and record the residual disinfectant concentration of the water supplied to the distribution system.

PWSs, which provide 4-log inactivation of viruses for groundwater sources and serve 3,300 or fewer persons, are required to take one daily grab sample during the hour of peak flow to measure the residual

disinfectant concentration of the water being supplied to the distribution system. If any daily grab sample measurement falls below the DEP approved minimum residual disinfectant concentration, the groundwater system is required to take and report follow up samples every 4 hours until the residual disinfectant concentration is restored to the Department-approved minimum level, specified in the operations permit.

Note: Systems serving 3,300 or fewer persons that conduct continuous monitoring are required to comply with the continuous monitoring requirements.

As provided in 25 *Pa.* Code §1302(a)(2), PWSs providing 4-log inactivation of viruses for groundwater sources must maintain a free chlorine residual of at least 0.40 mg/L at the entry point unless an alternative residual and/or monitoring location is approved. Report the lowest daily measurement and time, when the lowest daily measurement remains at or above the minimum required level. If, however, the residual falls below the minimum required level, report each initial date, time and value for each occurrence that the residual is determined to be less than the minimum required level and report the subsequent date, time, and value that the residual is restored to or above the minimum required level. In addition, PWSs must report each day that the entry point is not in operation.

If the continuous monitoring or recording equipment fails, the water supplier may, upon notification of DEP, substitute grab sampling or manual recording every 4 hours in lieu of continuous monitoring and recording. For PWSs providing 4-log inactivation of viruses for groundwater sources, grab sampling or manual recording may not be substituted for longer than 5 days after the equipment fails.

Specific Reporting Requirements for PWSs with Unfiltered Surface Water or GUDI Sources, per 25 *Pa. Code* §§109.202(c)(1)(iii) and 109.301(2)(i)(E):

For PWSs using chlorine or chloramines and with unfiltered GUDI or surface water sources permitted for use prior to March 25, 1989, the free chlorine (or its equivalent) disinfectant residual must be at least 2.5 mg/L free chlorine as measured at the entry point (distribution system prior to the first customer). The disinfectant residual must be at least 0.2 mg/L as measured at the entry point (distribution system prior to the first customer) for PWSs using a disinfectant other than chlorine or chloramines.

The disinfectant residual must be continuously monitored and recorded. Report the lowest daily residual. If the continuous monitoring or recording equipment fails, the water supplier may, upon notification of DEP, substitute grab sampling or manual recording every 4 hours in lieu of continuous monitoring/recording. Grab sampling or manual recording may not be substituted for longer than 5 working days after the equipment fails.

Specific Distribution Chlorine Residual Reporting Requirements for PWSs using surface, GUDI, groundwater with 4-log treatment or unfiltered surface water and GUDI sources, per 25 *Pa. Code* §§109.301(1)(i)(F), 109.301(2)(i)(G) and 109.710(c) and (d):

PWSs are required to monitor for disinfectant residuals at the same time and locations as coliform samples. Disinfectant residual monitoring must also occur at representative locations within the distribution system at least once a week. PWSs that collect coliform samples weekly may meet the DRR weekly monitoring requirement without additional monitoring. PWSs need to be aware of months with 5 weeks and make sure that they have monitoring in all 5 weeks. The minimum residual concentration is 0.2 mg/L and should be measured as follows:

- PWSs using chlorine should monitor for free chlorine.
- PWSs using chloramines should monitor for total chlorine.
- If a free chlorine burn is conducted, monitoring should be done for both free and total chlorine for the duration of the burn.
- PWSs with any mixing zones (mixing of chlorine-treated water and chloramine-treated water) should monitor for both free and total chlorine in the mixing zone.

PWSs may substitute online monitoring and recording in the distribution system for grab sampling. A required recording frequency is not specified in DRR, so the PWS should document the recording frequency in its DRR sample siting plan that they submit to DEP. Any online instrumentation must be validated according to 25 *Pa. Code* §109.304 and EPA Method 334.0.

If using grab sampling, report all individual results in accordance with the DRR site sampling plan. If more than one grab sample is analyzed at the same location on the same day, report each measurement for that location ID individually with the corresponding sample times. If using a continuous online analyzer, report a single daily result, for one day of the week. The daily result should be a daily average of all recorded measurements from the online analyzer. Report results to the hundredths decimal place for both grab sampling and continuous monitoring. While a sample time is required for grab sampling results, a sample time is not required for locations with continuous online analyzers because a daily average is reported.

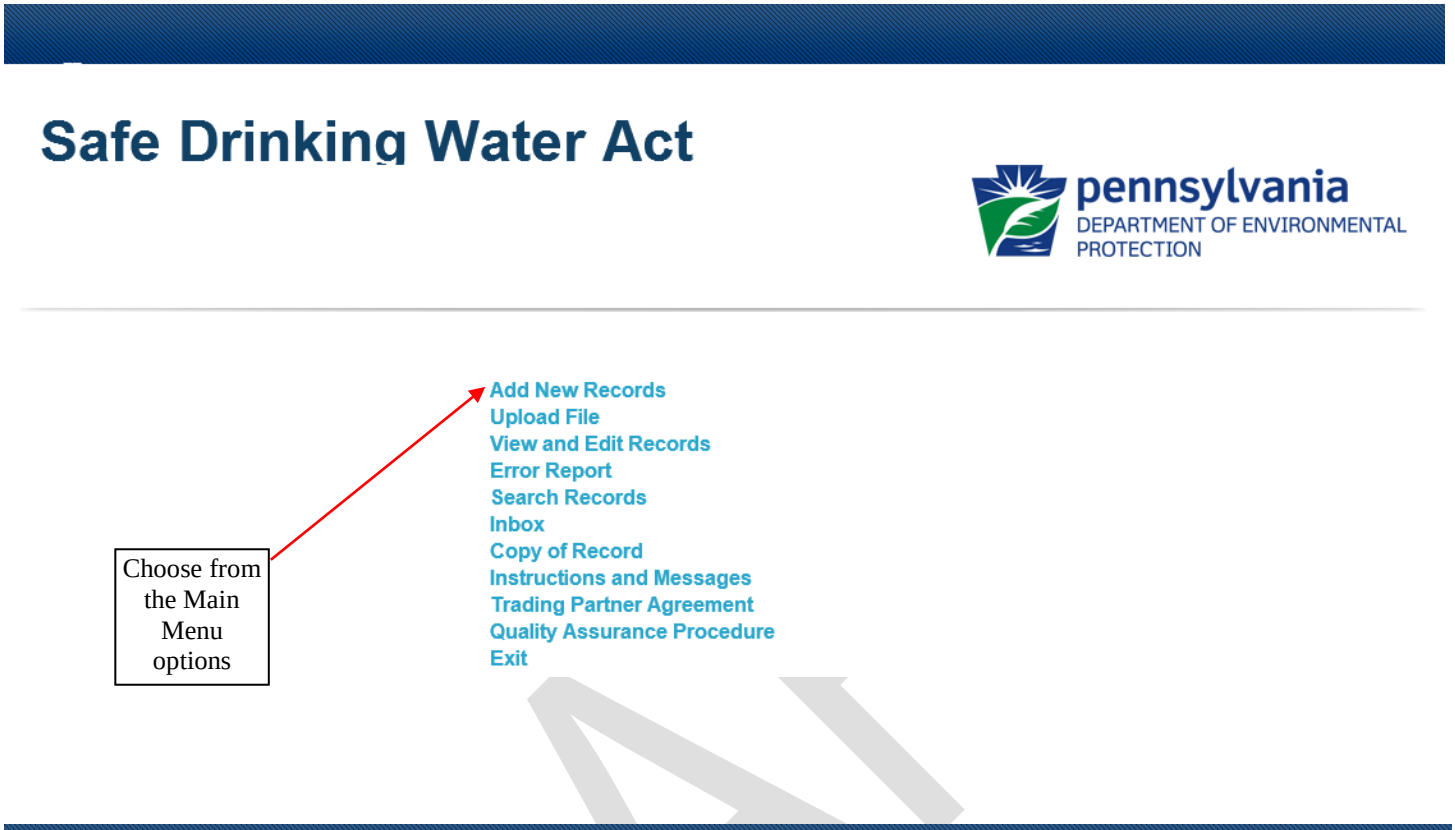
Any sample location with a result less than 0.2 mg/L during the month must be monitored the following month. If monitoring is conducted at the same sites each month, no additional samples would be necessary.

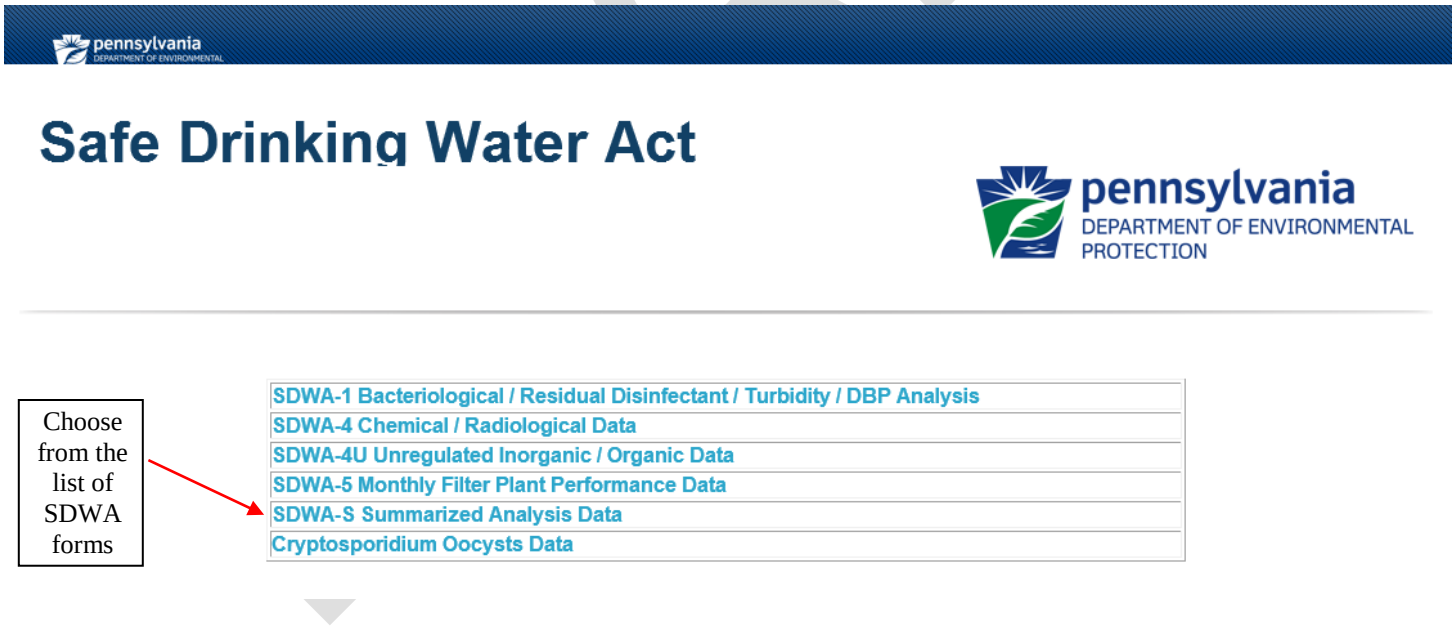
See Section 6 for Giardia and virus log inactivation reporting information.

SUBSECTION A: SDWA-S FORM; INSTRUCTIONS FOR DISINFECTANT RESIDUALS

The SDWA-S SUMMARY ANALYSIS form is only used to summarize the number of days chlorine dioxide was used at each entry point. The SDWA-S form is electronically submitted through DWELR. See Section 3: Electronic Assistance Tools in this manual for information on how to gain permissions for DWELR. Instructions on how to use the electronic SDWA forms are found after logging into DWELR. A screenshot of the SDWA-S form and descriptions of how the form should be completed are on the following pages.

In DEP Greenport, enter *DWELR* and go to the Main Menu:





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SDWA S - SUMMARY ANALYSIS

SDWA-S

			Current Lab Certifications				Contaminants not Requiring Certification										
	PWSID	PWS Name	Contam ID	Analysis Meth	No. of Routine Samples Reqd	No. of Routine Samples Taken	No. of Routine Samples out of Compliance	No. of Check Samples out of Compliance	Sample Type	Last Sample Date	Lab ID	No. of Check Samples Taken	Loc/EP ID	Sample Period Begin Date	Sample Period End Date	Sample ID	Average Result
Copy Previous																	

DWELR SDWA-S SUMMARY ANALYSIS DATA Form Instructions for Electronic Reporting of Disinfectant Residuals

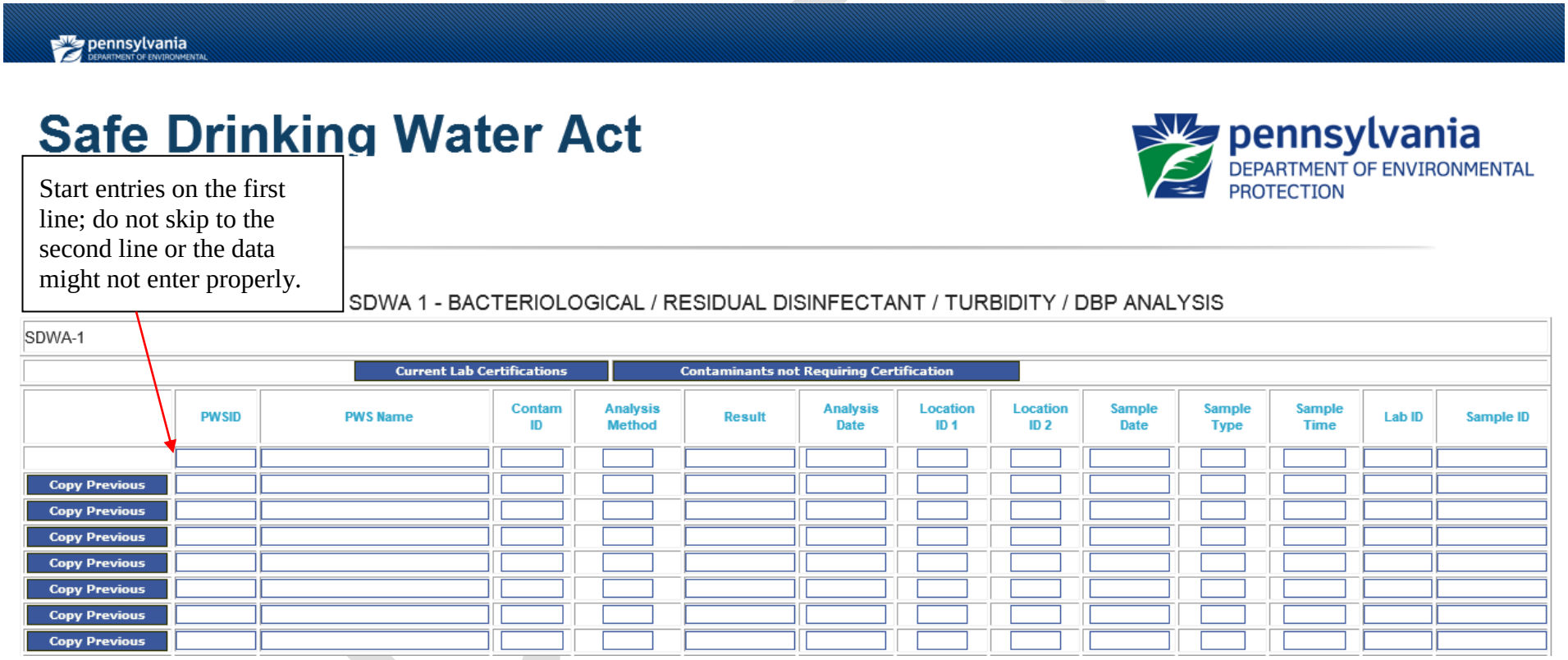
DATA FIELD	DESCRIPTION
PWS ID	Enter the 7-digit public water system identification number (ID) of the PWS to which these samples apply. *Failure to enter the correct PWSID will result in the water supplier not receiving credit for conducting for the required monitoring.* If you do not know the PWS ID number, contact the local DEP or CHD office. All PWS ID numbers are assigned by the local DEP or CHD office.
PWS NAME	The system automatically enters the name of the PWS after the PWSID is entered.
PARAMETER ID and ANALYSIS METHOD	Leave blank for reporting chlorine dioxide entry point treatment days.
NUMBER OF ROUTINE SAMPLES REQUIRED	For systems using chlorine dioxide, enter the total number of entry point treatment days for the PWS. An entry point treatment day is equal to 1 entry point whereby water treated with chlorine dioxide was delivered to the distribution system for any portion of 1 day. Example: 2 entry points delivering water treated with chlorine dioxide from 2 separate treatment plants for 14 days is equal to 28 entry point treatment days. **Note:** Purchased water entry points are excluded unless the entry point is treated with chlorine dioxide. Report a completed SDWA-S form for each month. If chlorine dioxide is not used during the month, enter the number "0".
NUMBER OF ROUTINE SAMPLES TAKEN	Enter the actual number of entry point chlorine dioxide samples that were collected and analyzed during the sampling period. If chlorine dioxide was not used during the month, enter the number "0".

DWELR SDWA-S SUMMARY ANALYSIS DATA Form Instructions for Electronic Reporting of Disinfectant Residuals (continued)

DATA FIELD	DESCRIPTION
NUMBER OF SAMPLES OUT OF COMPLIANCE	Leave blank for reporting chlorine dioxide entry point treatment days.
SAMPLE TYPE	Enter the letter code "E" for chlorine dioxide entry point treatment days.
LAST SAMPLE DATE	Leave blank for reporting chlorine dioxide entry point treatment days.
LAB ID	Enter the 5-digit PA laboratory identification number assigned to the laboratory, water system, or individual analyzed the samples. This is a required field for samples to be accepted. Do not use dashes or symbols.
CHECKS TAKEN	Leave blank, not applicable for chlorine dioxide reporting.
LOCATON (SAMPLING) ID	Leave blank, not applicable for chlorine dioxide reporting.
SAMPLE PERIOD BEGIN DATE/END DATE	Enter the beginning date (MMDDYY) and ending date (MMDDYY) for the sampling period (month). For example, for the month of October 2019 enter "Sample Period Begin 100119" and "Sample Period End 103119".
SAMPLE ID	(optional) Enter the unique laboratory sample identification.
AVERAGE RESULT	Leave blank for reporting chlorine dioxide entry point treatment days.

SUBSECTION B: SDWA-1 FORM; INSTRUCTIONS FOR DISINFECTANT RESIDUALS

The SDWA-1 BACTERIOLOGICAL/RESIDUAL DISINFECTANT/TURBIDITY/DBP ANALYSIS form is submitted electronically through the DEP *DWELR*. See Section 3: ELECTRONIC ASSISTANCE TOOLS in this manual for information on how to gain permissions for DWELR. Access to DWELR is via DEP Greenport: www.depgreenport.state.pa.us. Instructions on how to use the electronic SDWA forms are found after logging into DWELR. A screenshot of the SDWA-1 form and descriptions of how the form should be completed are on the following pages.



SDWA-1 BACTERIOLOGICAL/RESIDUAL DISINFECTANT/TURBIDITY/DBP ANALYSIS Form Instructions for Electronic Reporting of Disinfectant Residuals

DATA FIELD	DESCRIPTION
PWS ID	Enter the 7-digit identification number of the PWS to which these samples apply. Failure to enter the correct PWSID will result in the water supplier not receiving credit for conducting the required monitoring. If you do not know the PWS ID number, contact the local DEP or CHD office. All PWSID numbers are assigned by the local DEP or CHD office.
PWS NAME	The system automatically enters the name of the PWS after the PWSID is entered.
PARAMETER ID and ANALYSIS METHOD	Enter the 4-digit identification code for the contaminant/parameter being reported. Enter the 3-digit code of the approved analysis method used to analyze the samples See Table 3 for the Parameter ID and DEP Method Codes. Leave blank for Sample Type 'N'. Samples analyzed for a parameter/contaminant by different methods may be reported on the same SDWA-1 form.
ANALYSIS DATE MMDDYY	Enter the date (MMDDYY) on which the sample analysis was performed. Example: For April 15, 2019, enter 041519.
ANALYSIS RESULT	Enter the result of each sample analyzed. Unless otherwise specified, report results to the least significant digit of the MRDL. Enter the decimal point directly in the result field. **Note:** Be sure to use proper units when entering sample results. See Section 8: Required Number of Monitoring Samples and Section 9: Rules for Disinfectant Residuals Monitoring and Reporting.

DATA FIELD	DESCRIPTION
ANALYSIS RESULT (continued)	**Entry Point Measurements:** Report an entry point measurement for each day of the month that treatment is in use; leave blank for sample type 'N.'

A. **Chlorine (Free or Total; Chloramines reported as total):** Applies to PWSs using surface water, GUDI sources and those providing 4-log inactivation of viruses of groundwater sources. Report monthly: the date, time and lowest value each day the residual disinfectant concentration remains equal to or greater than the required minimum value. Also, report the initial date, time and value for each occurrence that the residual disinfectant concentration is less than the required minimum, and the subsequent date, time and value that the residual disinfectant concentration is equal to or greater than the required minimum. Report all results in mg/L to the nearest **hundredths** decimal place.

B. **Chlorine Dioxide:** Applies to systems using chlorine dioxide for any reason (excludes consecutive systems and purchased water entry points unless the purchasing system treats the water with chlorine dioxide). Report all results in mg/L to the nearest **tenths** decimal place. Report monthly, one measurement for each entry point treatment day. An entry point treatment day is equal to 1 entry point where water treated with chlorine dioxide was delivered to the distribution system for any portion of 1 day. If more than one measurement per day is taken from a location, report the highest value for that location each day. A 3-sample set must be collected in the distribution system on the day following any entry point result that is greater than the MRDL of 0.8 mg/L, as per 25 *Pa. Code* §109.301(13)(ii)(B).

Note: The total number of Chlorine Dioxide entry point samples reported should equal the Number of Routine Samples Taken that were reported on the SDWA-S form.

DATA FIELD	DESCRIPTION
ANALYSIS RESULT (continued)	**<u>Distribution System Measurements</u>:** A. **Chlorine (Free or Total; Chloramines reported as total):** Report monthly, the disinfectant residual of total or free chlorine measured during coliform sampling and weekly monitoring. B. **Chlorine Dioxide:** Distribution system monitoring is only required on the day following any chlorine dioxide entry point sample greater than 0.8 mg/L. Report monthly, the residuals of each chlorine dioxide 3-sample set collected during the month. Report all results in mg/L to the nearest tenths decimal place.

DATA FIELD	DESCRIPTION
LOCATION ID1 (Location ID, EP ID, or Plant ID)	Enter a unique 3-digit number which identifies the location at which the sample was collected.

Entry Point Measurements (Disinfectant Residual): Applies to each filtered surface water entry point, each filtered GUDI entry point and each groundwater entry point where 4-log treatment of viruses is being provided. Enter the 3-digit Entry Point ID in the Location ID1 column.

> **Note:** DEP or CHD assigned Entry Point ID Numbers always begin with "1" (e.g., 101).

Distribution System Measurements: Enter the 3-digit distribution system sample location ID in the Location ID1 column.

> **Note:** Distribution system ID numbers are not assigned by DEP or CHD. The water supplier assigns a unique 3-digit number for each distribution sample location. These ID numbers should be specified in the water supplier's Revised Total Coliform Rule and/or DRR monitoring plan.

A. **Chlorine (Free or Total; Chloramines reported as total or both free and total):** Measurements taken at the same time and locations in the distribution system as the coliform samples taken (both routine and check samples) for compliance with the coliform MCL and weekly monitoring conducted in accordance with the DRR Monitoring Plan.

B. **Chlorine Dioxide:** Only required if MRDL was exceeded the previous day, taken at the locations as specified below:

- If the system has booster chlorination, collect samples on the same day from the following locations:
  - a site as **close as possible to the first customer**,
  - a site representing **average residence time**, and
  - a site representing **maximum residence time**.

- If the system does not have booster chlorination, collect 3 samples from the same location, as close as possible to the first customer, at least 6 hours apart (but within the same 24-hour period).

SDWA-1 BACTERIOLOGICAL/RESIDUAL DISINFECTANT/TURBIDITY/DBP ANALYSIS Form Instructions for Electronic Reporting of Disinfectant Residuals (continued)

DATA FIELD	DESCRIPTION
LOCATION ID2	Leave blank; this is not applicable.
SAMPLE DATE	Enter the date (MMDDYY) on which the sample was collected. For disinfectant residual measurements, the sample date will be the same as the analysis date. Example: For a sample collected October 2, 2019 enter the date as 100219.
SAMPLE TYPE	Enter the appropriate letter code which corresponds to the type of sample collected as follows: **E** = Entry Point **D** = Distribution (The chlorine residuals taken with total coliform check samples are reported as "D" samples.) **S** = Special: Suppliers may wish to collect and have analyzed special samples to meet their needs or may be required by DEP or a CHD to take samples to fulfill a special requirement. For example, if special total coliform samples are collected to lift at Boil Water Advisory, the chlorine residual results collected at the same time would be coded as sample type "S." **N** = Not used: Entry point was not used for an entire day. **Note**: Failure to report analysis results with the correct and appropriate sample type codes will result in the water supplier receiving violations for failure to monitor.
SAMPLE TIME	Enter the time of day at which the sample was collected. Enter sample times in military time. Examples: for 5:15 PM enter as 1715; for 8:30 AM enter as 0830. **Note:** This field is required, unless entering sample type "N". Leave sample time blank for sample type "N". Sample type "N" is only valid for entry point location IDs.
LAB ID	Enter the 5-digit PA Laboratory Identification number assigned to the laboratory, water system, or individual that analyzed the samples. Do not use dashes or symbols. Disinfectant residual analyses (total and free chlorine and chlorine dioxide) may be conducted by a certified water operator or person using a standard operating procedure.
SAMPLE ID	(Optional) Enter the unique laboratory sample identification.

SECTION 5: DATA CODES FOR REPORTING MONITORING RESULTS

This section contains codes and reporting requirements for Total and Free Chlorine and Chlorine Dioxide laboratory analysis results. Table 3 below shows parameter and method codes for disinfectant residuals.

Table 3: Codes for Reporting Chlorine and Chlorine Dioxide

PARA-METER NAME	*PARA-METER ID*	*EPA ANALYSIS METHOD*	*DEP METHOD CODE*	*UNITS TO REPORT*
Total Chlorine	1000	DPD Colorimetric: SM 4500-Cl G, Hach Method 10260	301	mg/L
		Amperometric Titration: SM 4500-Cl D, ASTM 1253-03, 08	587	
		DPD Ferrous Titrimetric: SM 4500-Cl F	588	
		Low Level Amperometric Titration: SM 4500-Cl E	591	
		Iodometric Electrode: SM 4500-Cl I	592	
		Amperometric Sensor (Palin Test): ChloroSense & ChlordioX Plus 32	596	
Free Chlorine	1013	DPD Colorimetric: SM 4500-Cl G Hach Method 10260	301	mg/L
		Indophenol Colorimetric: Hach Method 10241	579	
		Amperometric Titration: SM 4500-Cl D ASTM 1253-08	587	
		DPD Ferrous Titrimetric: SM 4500-Cl F	588	
		Syringaldazine (FACTS): SM 4500-Cl H	590	
		Amperometric Sensor (Palin Test): ChloroSense & ChlordioX Plus 32	596	
Chlorine Dioxide	1008	DPD Colorimetric: SM 4500-ClO2 D, Hach Method 10126	578	mg/L
		Amperometric Method II: SM 4500-ClO2 E	594	
		Amperometric Method I: SM 4500-ClO2 C	598*	
		Amperometric Sensor (Palin Test): Chlorosense & ChlordioX Plus 32	596	

Key: mg/L = milligrams per liter
* this method is only valid for Filter Rule compliance samples

SECTION 6: GIARDIA AND VIRUS LOG INACTIVATION

PWSs with surface water or GUDI sources are required to calculate and report Giardia log inactivation at least once per day during expected peak hourly flow*. Giardia log inactivation must also be calculated if the disinfectant residual falls below 0.20 mg/L and continue to be calculated every 4 hours until the disinfectant residual is at or above 0.20 mg/L, as per 25 *Pa. Code* §109.301(1)(v).
If a disinfectant other than chlorine is used to achieve log inactivation, calculate and report log inactivation of viruses at least once per day during expected peak hourly flow*. Log inactivation of viruses must also be calculated if the disinfectant residual falls below 0.20 mg/L and continue to be calculated every 4 hours until the disinfectant residual is at or above 0.20 mg/L, as per 25 *Pa. Code* §109.301(1)(vi).
Also, if Giardia log inactivation is less than 1.0 and virus inactivation is less than 3.0, continue to calculate and report at least every 4 hours until value is at or above the minimum value, per 25 *Pa. Code* §109.202(c)(1)(ii)(A).

*However, if flow rate and tank levels are consistent, calculate Giardia/virus log inactivation with the daily minimum chlorine residual.

SDWA-1 Form Instructions for Electronic Reporting of Log Inactivation

DATA FIELD	DESCRIPTION
PWS ID	Enter the 7-digit identification number of the PWS to which these samples apply. Failure to enter the correct PWSID will result in the water supplier not receiving credit for conducting the required monitoring. If you do not know the PWS ID number, contact the local DEP or CHD office. All PWSID numbers are assigned by the local DEP or CHD office.
PWS NAME	The system automatically enters the name of the PWS after the PWSID is entered.
PARAMETER ID	Enter LogG for Giardia Log Inactivation and LogV for Virus Log Inactivation
ANALYSIS METHOD & ANALYSIS DATE	Leave blank; the result is calculated
ANALYSIS RESULT	Report calculated *Giardia* Inactivation (LogG) and Virus Inactivation (LogV) results to two decimal places. Truncate digits after the hundredth's place.
LOCATION ID 1	Enter the 3-digit Entry Point ID in the Location ID1 column. **Note:** DEP or CHD assigned Entry Point ID Numbers always begin with "1" (e.g., 101).
LOCATION ID 2	Leave blank; this is not applicable.
SAMPLE DATE	Enter the date (MMDDYY) on which the results used in the calculation were collected and analyzed. Example: For a sample collected October 2, 2019 enter the date as 100219.

SDWA-1 Form Instructions for Electronic Reporting of Log Inactivation (continued)

DATA FIELD	DESCRIPTION
SAMPLE TYPE	Enter the appropriate letter code which corresponds to the type of sample collected as follows: **E** = Entry Point **N** = Not used: If the filter plant is not in operation for an entire day. **Note**: Failure to report analysis results with the correct and appropriate sample type codes will result in the water supplier receiving violations for failure to monitor.
SAMPLE TIME	Enter the time when the results used in the calculation were collected and analyzed. Enter sample times in military time. Examples: for 5:15 PM enter as 1715; for 8:30 AM enter as 0830. **Note:** This field is required, unless entering sample type "N". Leave sample time blank for sample type "N".
LAB ID	Enter the 5-digit PA Laboratory Identification number assigned to the water system or individual that analyzed the samples. Do not use dashes or symbols.
SAMPLE ID	(Optional) Enter the unique laboratory sample identification.

SECTION 7: INSTRUCTIONS FOR SDWA CORRECTION FORMS

The SDWA correction forms are for the correction of ***previously*** submitted data no longer in DWELR. Omitted sample results and summary forms that were not previously reported should be submitted through DWELR.

The two permitted methods to correct previously submitted data are as follows:

1. A copy of a DWELR printed report of the original submission may be used for corrections. If using a DWELR printout, strikeout the incorrect information and write the correct information on the form; initial and date the correction. (Note: Do not strikeout the incorrect information heavily so that the original information cannot be read or faxed. Do not use a highlighter on forms to be faxed or copied.)

   Include the following information, which can be handwritten on the form:
   - The reason for the correction
   - The name of the laboratory, the authorizing personnel and the date of the corrected submission

2. SDWA Correction forms are shown in Appendix III in this document (examples only). Correction forms are available online at http://www.depgreenport.state.pa.us/elibrary/search. Enter "*SDWA*" in the document name search field. Enter all the correct information to the form as it should have been submitted. This information is required in order to identify the record. In the 'Submitted' sections, only the incorrect information should be entered.

Distribute SDWA correction forms as follows:

ORIGINAL COPY - Send a copy to DEP's central office at the following mailing or direct carrier service (UPS, FED Ex) address.

USPS	UPS or FED Ex
PA DEP SDWA MONITORING DATA 10TH FLOOR RCSOB PO BOX 8467 HARRISBURG PA 17105-8467	PA DEP SDWA MONITORING DATA 10TH FLOOR RCSOB 400 MARKET STREET HARRISBURG PA 17101

Corrections may be submitted by fax if requested by DEP Safe Drinking Water central office or field personnel. Obtain the fax number directly from them. Only upon specific request by DEP field personnel should corrections be sent directly to the field office instead of the central office. In this case, a copy does not need to be sent to central office.

SECOND COPY - Send a copy to the water supplier.

THIRD COPY - Retain a copy for the laboratory's records.

SECTION 8: REQUIRED NUMBER OF MONITORING SAMPLES

This section contains the number of disinfectant residual samples that are required in the distribution system for community and noncommunity water systems using surface water or GUDI sources or transient noncommunity water systems with 4-log treatment of viruses. The numbers of samples required per month, as listed in Table 4, are also equivalent to the number of total coliform samples that are required to be taken in the ***distribution system*** (per the Revised Total Coliform Rule (RTCR)) for systems > 4,100. For all systems, the weekly requirement for DRR still needs to be met, so additional distribution chlorine residual samples may be required.

Note: Be sure to consult both the RTCR and DRR site sampling plans as the number of samples required may vary from month to month and system to system, depending on distribution system configuration.

Table 4: The Required Number of Disinfectant Residual Monitoring Samples

POPULATION SERVED	MINIMUM NUMBER OF SAMPLES PER MONTH*
25 to 1,000	4
1,001 to 2,500	4
2,501 to 3,300	4
3,301 to 4,100	4
4,101 to 4,900	5
4,901 to 5,800	6
5,801 to 6,700	7
6,701 to 7,600	8
7,601 to 8,500	9
8,501 to 12,900	10
12,901 to 17,200	15
17,201 to 21,500	20
21,501 to 25,000	25
25,001 to 33,000	30
33,001 to 41,000	40
41,001 to 50,000	50
50,001 to 59,000	60
59,001 to 70,000	70
70,001 to 83,000	80
83,001 to 96,000	90
96,001 to 130,000	100
130,001 to 220,000	120
220,001 to 320,000	150
320,001 to 450,000	180
450,001 to 600,000	210
600,001 to 780,000	240
780,001 to 970,000	270
970,001 to 1,230,000	300
1,230,001 to 1,520,000	330
1,520,001 to 1,850,000	360
1,850,001 to 2,270,000	390
2,270,001 to 3,020,000	420
3,020,001 to 3,960,000	450
3,960,001 or more	480

* For systems < 4,100, 5 samples will be required in months with 5 weeks

SECTION 9: RULES FOR DISINFECTANT RESIDUALS MONITORING AND REPORTING

This section contains summaries of disinfectant residuals monitoring and reporting requirements for public water systems (PWSs) that use a chemical disinfectant or PWSs that obtain finished water from another PWS.

Chlorine (1000-Total chlorine; 1013-Free chlorine) (Distribution System)

PWSs Required To Monitor	MRDL	# Samples	Frequency	Sample Type	Sample Location Specifics	Altered Monitoring	Report	State Reporting Frequency	Violation Description
All CWSs & NTNCWSs (that use water treated with chlorine) (incl. consecutive systems) And TNCWSs providing 4-log treatment of viruses or surface water treatment	4.0 mg/L	Same as for total coliform monitoring.[1] Additional weekly samples are required for systems less serving less than 4,100.	Weekly for PWSs that use chlorine or chloramine for disinfection Monthly for NTNCWS's that use chlorine.	D S- when taken with "S" total coliform samples	All samples are to be taken at the same locations and times as total coliform samples.[1] Additional DRR locations may be specified in DRR site sample plan.	No altered monitoring.	All samples on SDWA-1 form. If the system switches between chlorine and chloramines or has a mixing zone, include both free and total chlorine measurements for that location.	Monthly. Within 10 days after the end of the month.	MRDL (11) RAA of monthly averages of all samples, computed quarterly, >MRDL. M/R (27) Major: <90% of samples taken or reported. Minor: 90-99% of samples taken or reported.

Chlorine (1000-Total chlorine; 1013-Free chlorine) (Distribution System)

PWS Type	Violation Type	Violation Description
Surface water systems (including purchased surface)	Treatment technique	(P1) If more than 5% of the samples required are less than 0.2 mg/L for 2 consecutive months
Groundwater systems (including purchased groundwater)	Treatment technique	(R2) Systems required to collect <40 samples/month, if more than 1 sample is less than 0.2 mg/L for 2 consecutive months (R2) Systems required to collect >40 samples/month, if more than 5% of samples required are less than 0.2 mg/L for 2 consecutive months.
Surface and Groundwater systems (including purchased surface and groundwater)	Monitoring and reporting	(R3) Failure to collect weekly disinfectant residual and/or failure to monitor sufficient number of monthly disinfectant residuals with the correct contaminant code. (R4) Failure to sample low residual location the following month. (R5) Failure to submit Distribution System Investigation within 60 days of second consecutive month <0.2 mg/L distribution residual at same location.

[1] Take one chlorine (free or total) sample for every total coliform sample that is taken. That includes all routine and check total coliform samples.

Chlorine (1000-Total chlorine; 1013-Free chlorine) – Entry Point

PWSs Required To Monitor	Minimum Residual Required (MRR)	Frequency	Sample Type	Sample Location Specifics	Altered Monitoring	Report	State Reporting Frequency	Violation Description
CWSs & NCWSs using SW/GUDI sources w/ filtration treatment	0.20 mg/L measured as chlorine (1000 or 1013)	Continuously	E	Each finished water entry point.	No altered monitoring.	SDWA-1 Form: • Lowest value each day if all values > MRR. • The date & time the residual < MRR *AND* the date & time residual is again ≥ MRR. • Each day EP is off-line.	Monthly, within 10 days after the end of the month.	**TT (P1)** Failure to maintain MRR for > 4 hours. **M/R (P3 or P4)** Major: < 90% of samples taken or reported. Minor: 90-99% of samples taken or reported.
CWSs using GW sources and demonstrating 4-log inactivation of viruses	0.40 mg/L (unless an alternate residual is approved)	PWSs serving < 3300: Daily grab during peak flow [2,3] PWSs serving > 3300: Continuously	E	Each finished water entry point or other location approved by DEP.	No altered monitoring.	Same as above.	Same as above.	**TT (41)** Failure to maintain MRR for > 4 hours. **M/R (34)** Major: No samples taken or reported. Minor: ≥ 1 sample, but < total # required, taken or reported.
NCWSs using GW sources and demonstrating 4-log inactivation of viruses	Value used to demonstrate 4-log treatment & approved by DEP	PWSs serving < 3300: Daily grab during peak flow [2,3] PWSs serving > 3300: Continuously	E	Each finished water entry point or other location approved by DEP.	No altered monitoring.	Same as above.	Same as above.	**TT (41) & M/R (34)** Same as above.

[2] If the residual falls below MRR, PWS must conduct grab sampling every 4 hours until residual ≥ MRR.
[3] Continuous monitoring may be required in the PWSs permit

Chlorine Dioxide (1008) (Entry Point)

PWSs Required To Monitor	MCL	# Samples	Frequency	Sample Type	Sample Location Specifics	Altered monitoring	Report	State reporting frequency	Violation description
PWSs that treat with Chlorine Dioxide (Exclude consecutive systems unless they treat with chlorine dioxide.)	0.8 mg/L	1	Daily (only when chlorine dioxide treatment is in use.)[3]	E [4]	Each EP treated with chlorine dioxide. (Purchased water connections are excluded.)[5]	No altered monitoring. However, distribution system monitoring (D) is required if an "E" sample >MRDL (see below).	SDWA-S Form: The number of entry point samples required and the number of entry point samples taken each month, based on the number of "entry point treatment days." [6] SDWA-1 Form: All entry point Chlorine dioxide detail result information (may be reported on same form as "D" samples).	Monthly Within 10 days after the end of each month. Note: When chlorine dioxide treatment is not in operation, report SDWA-S form information, indicating 0 samples required and 0 samples taken.	MRDL (11/13) Non-acute violation (11) if: 1. Any 2 consecutive daily "E" samples >MRDL and all "D" samples <MRDL; *or* 2. Failure to take any "E" sample the day after any "E" sample is >MRDL. Acute violation (13) if. Any "E" sample >MRDL and: 1. At least 1 of 3 "D" samples next day >MRDL; *or* 2. System fails to take 3 "D" samples the following day. M/R (27) Major: <90% of all samples (E & D) taken or reported. Minor: 90-99% of all samples (E & D) taken or reported.

Chlorine Dioxide (1008) (Distribution System)

PWSs that treat with Chlorine Dioxide (Exclude consecutive systems unless they treat with chlorine dioxide.)	0.8 mg/L	3-sample set	Only the day after an "E" sample >MRDL.	D	If no Cl booster – close to first customer. If Cl booster – close to first customer, average, and end of distribution system.	NA	All "D" Chlorine dioxide detail result information on SDWA-1 form. (May be reported on same form as "E" samples.) (See above)	Monthly (only when an EP sample exceeds the MRDL, which requires that a 3-sample set be taken in the distribution system). (See above)	MRDL (11/13) See Chlorine dioxide entry point table above. M/R (27) See Chlorine dioxide entry point table above.

[3] However, if a daily "E" sample exceeds the MRDL, an "E" sample and follow-up "D" samples are to be taken the next day, even if chlorine dioxide treatment isn't being used the next day.

[4] DEP will not track "E" samples by specific entry point; only that the correct number of samples was taken per month.

[5] If any chlorine dioxide samples exceed the MRDL in the selling system, DEP may require the purchasing system to conduct chlorine dioxide monitoring.

[6] An "entry point treatment day" is equal to one entry point through which water treated with chlorine dioxide was delivered to the distribution system for any portion of 1 day. For example, two entry points delivering chlorine dioxide treated water from two separate treatment plants for 14 days is equal to 28 "entry point treatment days."

SECTION 10: CASE EXAMPLES

CASE 1: MOUNTAIN VALLEY COMMUNITY SURFACE WATER SYSTEM

The Mountain Valley Water is a community water system (CWS) serving a population of 5,500 people. The water system has a ***surface water*** source that supplies a conventional filter plant. The system uses chlorine gas for disinfection and has one (1) entry point (EP 101) to the distribution system. The Mountain Valley Water Company is required to perform the following activities based on the requirements of the *PA Filter Rule* and the *D/DBPR*:

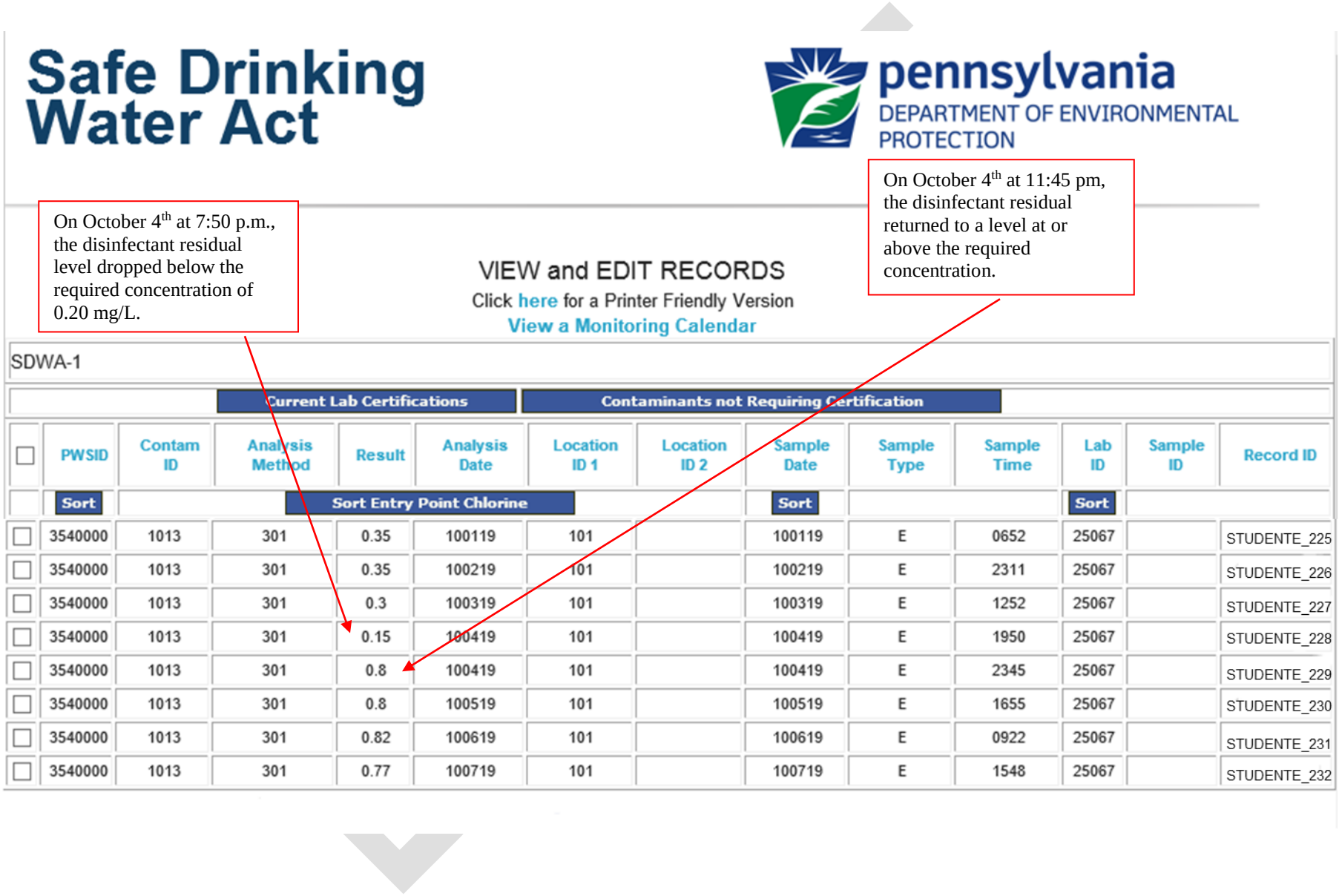
- Continuously monitor the disinfectant residual at the entry point to the distribution system.
- Report an entry point disinfectant residual value each day.
- Report the lowest entry point measurement for each day, that the residual disinfectant concentration remains equal to or greater than the required level of 0.20 mg/L.
- Report the initial date, time, and value for each occurrence that the residual disinfectant concentration is less than 0.20 mg/L and the subsequent date, time, and value that the residual disinfectant concentration is again equal to or greater than 0.20 mg/L.
- Measure disinfectant residual from the distribution system at the same time and the same locations as the coliform samples taken for compliance with the microbiological MCL. Report the individual distribution system residuals each month. (This is a *total of 6 sites* for this example; see Section 8: Required Number of Monitoring Samples.)
- Report DBP and DBP precursors sample results per requirements.
- Calculate and report log inactivation of Giardia at least once per day during expected peak hourly flow and whenever the EP residual falls below 0.20 mg/L.

> **Note:** See the *Laboratory Reporting Instructions for Disinfection Byproducts and Precursors* technical guidance manual, which further explains DBP and DBP Precursors reporting and requirements for this situation.

Scenario: During the month of October 2019, the water system had some problems with its disinfection treatment. On October 4, 2019, the disinfectant residual dropped below the required concentration of 0.20 mg/L. At 7:50 p.m. (1950 hours) the disinfectant residual level fell to 0.15 mg/L. At 11:23 p.m. (2323 hours) the disinfectant residual level fell to a low of 0.1 mg/L. At 11:45 (2345 hours) the reading was above the minimum required at 0.80 mg/L. Note that 2 measurements were reported on the SDWA-1 form for October 4, 2019 (one for the initial measurement below 0.20 mg/L and one for the reading when the residual level was restored to the required level).

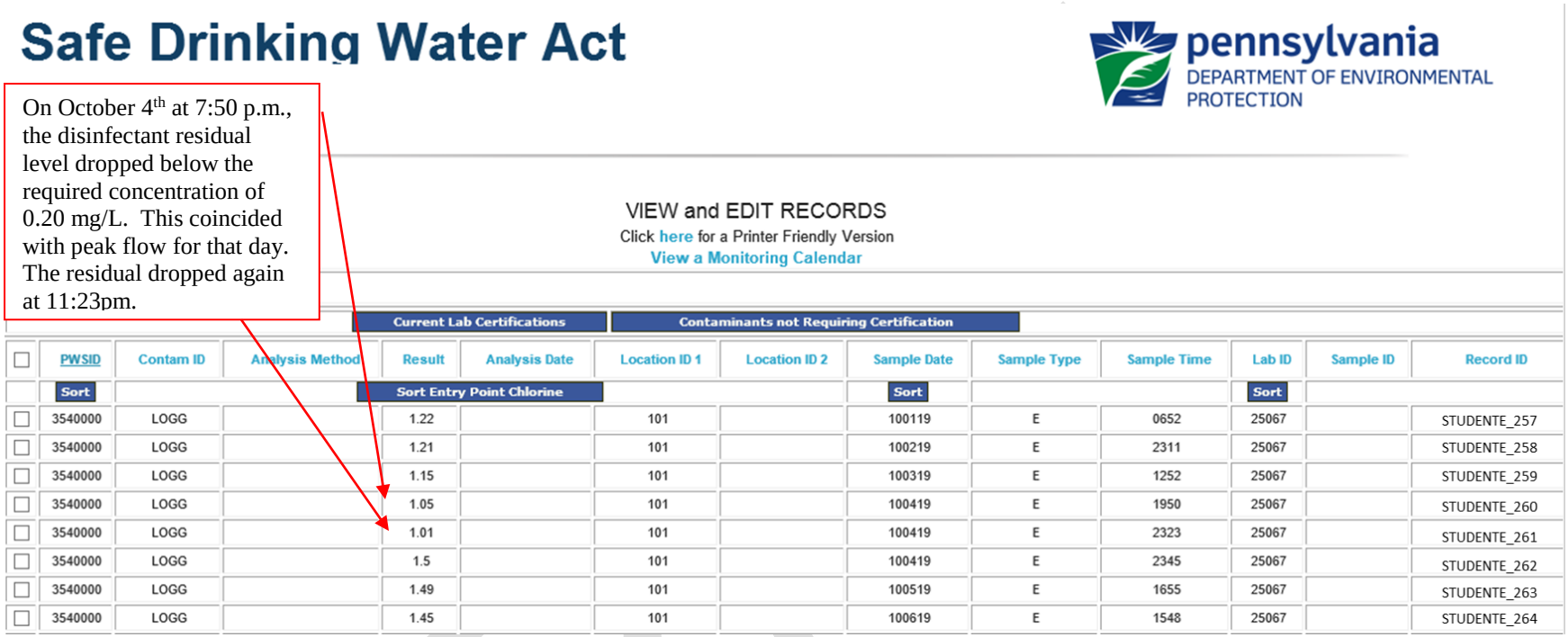
The following pages shows a snippet of completed SDWA-1 form for entry point chlorine residual results (screenshot example 1) and the log inactivation of Giardia. Distribution chlorine residual results also need to be reported on the SDWA-1 form (not shown), as "D" samples with the appropriate location ID specified in the system's DRR or RTCR site sample plan.

Case 1/Example screenshot 1 SDWA-1 Screen:



PWSID	Contam ID	Analysis Method	Result	Analysis Date	Location ID 1	Location ID 2	Sample Date	Sample Type	Sample Time	Lab ID	Sample ID	Record ID
Sort							Sort			Sort		
3540000	1013	301	0.35	100119	101		100119	E	0652	25067		STUDENTE_225
3540000	1013	301	0.35	100219	101		100219	E	2311	25067		STUDENTE_226
3540000	1013	301	0.3	100319	101		100319	E	1252	25067		STUDENTE_227
3540000	1013	301	0.15	100419	101		100419	E	1950	25067		STUDENTE_228
3540000	1013	301	0.8	100419	101		100419	E	2345	25067		STUDENTE_229
3540000	1013	301	0.8	100519	101		100519	E	1655	25067		STUDENTE_230
3540000	1013	301	0.82	100619	101		100619	E	0922	25067		STUDENTE_231
3540000	1013	301	0.77	100719	101		100719	E	1548	25067		STUDENTE_232

Case 1/Example screenshot 2 SDWA-1 Screen



	PWSID	Contam ID	Analysis Method	Result	Analysis Date	Location ID 1	Location ID 2	Sample Date	Sample Type	Sample Time	Lab ID	Sample ID	Record ID
	Sort			Sort Entry Point Chlorine				Sort			Sort		
☐	3540000	LOGG		1.22		101		100119	E	0652	25067		STUDENTE_257
☐	3540000	LOGG		1.21		101		100219	E	2311	25067		STUDENTE_258
☐	3540000	LOGG		1.15		101		100319	E	1252	25067		STUDENTE_259
☐	3540000	LOGG		1.05		101		100419	E	1950	25067		STUDENTE_260
☐	3540000	LOGG		1.01		101		100419	E	2323	25067		STUDENTE_261
☐	3540000	LOGG		1.5		101		100419	E	2345	25067		STUDENTE_262
☐	3540000	LOGG		1.49		101		100519	E	1655	25067		STUDENTE_263
☐	3540000	LOGG		1.45		101		100619	E	1548	25067		STUDENTE_264

CASE 2: HOMETOWN WATER COMPANY COMMUNITY SURFACE WATER SYSTEM

The Hometown Water Company is a community water system (CWS) serving a population of 23,000 people. The system has two (2) surface water sources that supply two (2) separate treatment plants. Both treatment plants use direct filtration, chlorine dioxide for taste and odor control, and chlorine gas for disinfection. There are two (2) entry points (101 and 102) to the distribution system (one from each treatment plant). The Hometown Water Company is required to perform the following activities based on the requirements of the *PA Filter Rule* and the *D/DBPR*:

- Continuously monitor the disinfectant residual at the entry point to the distribution system,
- Report an entry point disinfectant residual value each day.
- Report the lowest entry point measurement for each day, if the residual disinfectant concentration is not less than 0.20 mg/L for more than a 4-hour period.
- Report the lowest measurement for each 4-hour period, if the residual disinfectant concentration is less than 0.20 mg/L for more than a 4-hour period.
- Measure the disinfectant residual from the distribution system at the same time and the same locations as the coliform samples taken for compliance with the microbiological MCL. Report all individual residual values each month. (This is a total number of 25 sites for this example; see Section 8: Required Number of Monitoring Samples.) Measure the chlorine dioxide residual at each entry point each day that chlorine dioxide is used and report the results.
- Report the number of entry point treatment days or the total number of days that chlorine dioxide was used at each treatment plant during the month.
- Measure the chlorite levels and report the results per requirements.
- Collect TTHM/HAA5 samples per requirements.
- Calculate and report log inactivation of Giardia at least once per day during expected peak hourly flow.

Note: See the *Laboratory Reporting Instructions for Disinfection Byproducts and Precursors* technical guidance manual, which further explains DBP and DBP precursors, including chlorite, reporting and requirements for this situation. The technical guidance is available on the Department of Environmental Protection (DEP) website at http://www.depgreenport.state.pa.us/elibrary/search Enter "*Laboratory Reporting Instructions*" into the document name search.

During the month of November 2019, the system used chlorine dioxide for 10 days at one treatment plant and 15 days at the second treatment plant. Therefore, the total number of entry point treatment days is 25; this is 10 for entry point 101 + 15 for entry point 102 = 25 entry point treatment days. The following events should be noted for the system:

- On Nov. 7, 2019, there was a malfunction in the chlorine dioxide treatment at treatment plant 301; the entry point chlorine dioxide residual measurement was over 0.8 mg/L, and the chlorite level was over 1.0 mg/L. Therefore, on Nov. 8, 2019, the system was required to collect a chlorine dioxide 3-sample set in the distribution system and a chlorite 3-sample set in the distribution system. (Note that the chlorite samples will satisfy the monthly chlorite distribution system sampling requirement.)

- During the month of December 2019, the system did not use chlorine dioxide at either treatment plant.

Case 2 examples and screenshots show completed SDWA-1 and SDWA-S forms on the following pages. Descriptions of these examples include:

- Example screenshot 1 shows the SDWA-1 entry point (101, 102) chlorine residual (1013) results.

- Example screenshot 2 shows how to complete the SDWS-S form for chlorine dioxide (1008) during months the treatment is used (25 samples total for both Entry Points 101 and 102). The number of entry point treatment days (the total number of days that chlorine dioxide was used at each treatment plant during the month) was reported.

- Example screenshot 3 shows how to complete the SDWS-S form for chlorine dioxide (1008) during months when the treatment is not used at any plant.

- Example screenshot 4 shows the SDWA-1 form for chlorine dioxide (1008) sample results for the entry points (101, 102) and distribution sample results.

  Note: Distribution chlorine residuals are not shown in the example screenshots.

Case 2/Example screenshot 1 SDWA-1 Chlorine Residual Screen (EP 101):

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SDWA-1

			Current Lab Certifications				Contaminants not Requiring Certification							
☐	PWSID	Contam ID	Analysis Method	Result	Analysis Date	Location ID 1	Location ID 2	Sample Date	Sample Type	Sample Time	Lab ID	Sample ID	Record ID	
	Sort		Sort Entry Point Chlorine					Sort			Sort			
☐	4130065	1013	301	0.7	110119	101		110119	E	0628	25067		STUDENTE_316	
☐	4130065	1013	301	0.8	110219	101		110219	E	0640	25067		STUDENTE_317	
☐	4130065	1013	301	0.8	110319	101		110319	E	0705	25067		STUDENTE_318	
☐	4130065	1013	301	0.8	110419	101		110419	E	0615	25067		STUDENTE_319	
☐	4130065	1013	301	0.7	110519	101		110519	E	0743	25067		STUDENTE_320	
☐	4130065	1013	301	0.9	110619	101		110619	E	0825	25067		STUDENTE_321	
☐	4130065	1013	301	0.7	110719	101		110719	E	1550	25067		STUDENTE_322	
☐	4130065	1013	301	0.8	110819	101		110819	E	1620	25067		STUDENTE_323	
☐	4130065	1013	301	0.7	110919	101		110919	E	1727	25067		STUDENTE_324	
☐	4130065	1013	301	0.7	111019	101		111019	E	0915	25067		STUDENTE_325	
☐	4130065	1013	301	0.7	111119	101		111119	E	1140	25067		STUDENTE_326	
☐	4130065	1013	301	0.7	111219	101		111219	E	0250	25067		STUDENTE_327	
☐	4130065	1013	301	0.7	111319	101		111319	E	1645	25067		STUDENTE_328	
☐	4130065	1013	301	0.9	111419	101		111419	E	0418	25067		STUDENTE_329	
☐	4130065	1013	301	0.9	111519	101		111519	E	0725	25067		STUDENTE_330	
☐	4130065	1013	301	0.9	111619	101		111619	E	1010	25067		STUDENTE_331	
☐	4130065	1013	301	0.9	111719	101		111719	E	1354	25067		STUDENTE_332	
☐	4130065	1013	301	0.8	111819	101		111819	E	1242	25067		STUDENTE_333	
☐	4130065	1013	301	0.8	111919	101		111919	E	0807	25067		STUDENTE_334	
☐	4130065	1013	301	1.0	112019	101		112019	E	0934	25067		STUDENTE_335	

Case 2/Example screenshot 1 (Continued) SDWA-1 Chlorine Residual Screen (EP 101 and 102):

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SDWA-1

			Current Lab Certifications				Contaminants not Requiring Certification							
☐	PWSID	Contam ID	Analysis Method	Result	Analysis Date	Location ID 1	Location ID 2	Sample Date	Sample Type	Sample Time	Lab ID	Sample ID	Record ID
	Sort			Sort Entry Point Chlorine				Sort			Sort		
☐	4130065	1013	301	1.0	112119	101		112119	E	1143	25067		STUDENTE_336
☐	4130065	1013	301	1.1	112219	101		112219	E	0521	25067		STUDENTE_337
☐	4130065	1013	301	1.1	112319	101		112319	E	0415	25067		STUDENTE_338
☐	4130065	1013	301	1.1	112419	101		112419	E	0822	25067		STUDENTE_339
☐	4130065	1013	301	1.0	112519	101		112519	E	1830	25067		STUDENTE_340
☐	4130065	1013	301	0.9	112619	101		112619	E	1540	25067		STUDENTE_341
☐	4130065	1013	301	0.9	112719	101		112719	E	0755	25067		STUDENTE_342
☐	4130065	1013	301	0.8	112819	101		112819	E	1415	25067		STUDENTE_343
☐	4130065	1013	301	0.9	112919	101		112919	E	0550	25067		STUDENTE_344
☐	4130065	1013	301	0.9	113019	101		113019	E	1300	25067		STUDENTE_345
☐	4130065	1013	301	1.1	110119	102		110119	E	1920	25067		STUDENTE_346
☐	4130065	1013	301	1.1	110219	102		110219	E	0710	25067		STUDENTE_347
☐	4130065	1013	301	1.2	110319	102		110319	E	0705	25067		STUDENTE_348
☐	4130065	1013	301	1.2	110419	102		110419	E	1520	25067		STUDENTE_349
☐	4130065	1013	301	1.2	110519	102		110519	E	1655	25067		STUDENTE_350
☐	4130065	1013	301	1.3	110619	102		110619	E	0830	25067		STUDENTE_351
☐	4130065	1013	301	1.1	110719	102		110719	E	1117	25067		STUDENTE_352
☐	4130065	1013	301	1.0	110819	102		110819	E	1834	25067		STUDENTE_353
☐	4130065	1013	301	1.1	110919	102		110919	E	0721	25067		STUDENTE_354
☐	4130065	1013	301	1.2	111019	102		111019	E	1356	25067		STUDENTE_355

Case 2/Example screenshot 1 (Continued) SDWA-1 Chlorine Residual Screen (EP 102):

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SDWA-1

			Current Lab Certifications			Contaminants not Requiring Certification								
☐	PWSID	Contam ID	Analysis Method	Result	Analysis Date	Location ID 1	Location ID 2	Sample Date	Sample Type	Sample Time	Lab ID	Sample ID	Record ID
	Sort			Sort Entry Point Chlorine				Sort			Sort		
☐	4130065	1013	301	1.2	111119	102		111119	E	2219	25067		STUDENTE_356
☐	4130065	1013	301	1.3	111219	102		111219	E	0411	25067		STUDENTE_357
☐	4130065	1013	301	1.1	111319	102		111319	E	0516	25067		STUDENTE_358
☐	4130065	1013	301	1.2	111419	102		111419	E	2010	25067		STUDENTE_359
☐	4130065	1013	301	1.0	111519	102		111519	E	1850	25067		STUDENTE_360
☐	4130065	1013	301	0.9	111619	102		111619	E	1935	25067		STUDENTE_361
☐	4130065	1013	301	0.9	111719	102		111719	E	0326	25067		STUDENTE_362
☐	4130065	1013	301	0.8	111819	102		111819	E	0640	25067		STUDENTE_363
☐	4130065	1013	301	0.9	111919	102		111919	E	0408	25067		STUDENTE_364
☐	4130065	1013	301	0.8	112019	102		112019	E	1530	25067		STUDENTE_365
☐	4130065	1013	301	1.0	112119	102		112119	E	2310	25067		STUDENTE_366
☐	4130065	1013	301	1.0	112219	102		112219	E	0937	25067		STUDENTE_367
☐	4130065	1013	301	1.1	112319	102		112319	E	0812	25067		STUDENTE_368
☐	4130065	1013	301	1.2	112419	102		112419	E	1054	25067		STUDENTE_369
☐	4130065	1013	301	1.2	112519	102		112519	E	1423	25067		STUDENTE_370
☐	4130065	1013	301	1.1	112619	102		112619	E	0509	25067		STUDENTE_371
☐	4130065	1013	301	1.2	112719	102		112719	E	1947	25067		STUDENTE_372
☐	4130065	1013	301	1.3	112819	102		112819	E	0749	25067		STUDENTE_373
☐	4130065	1013	301	1.1	112919	102		112919	E	2320	25067		STUDENTE_374
☐	4130065	1013	301	1.0	113019	102		113019	E	2041	25067		STUDENTE_375

Case 2/Example screenshot 2 SDWA-S Chlorine Dioxide for November 2019 (Both Entry Points 101 and 102):

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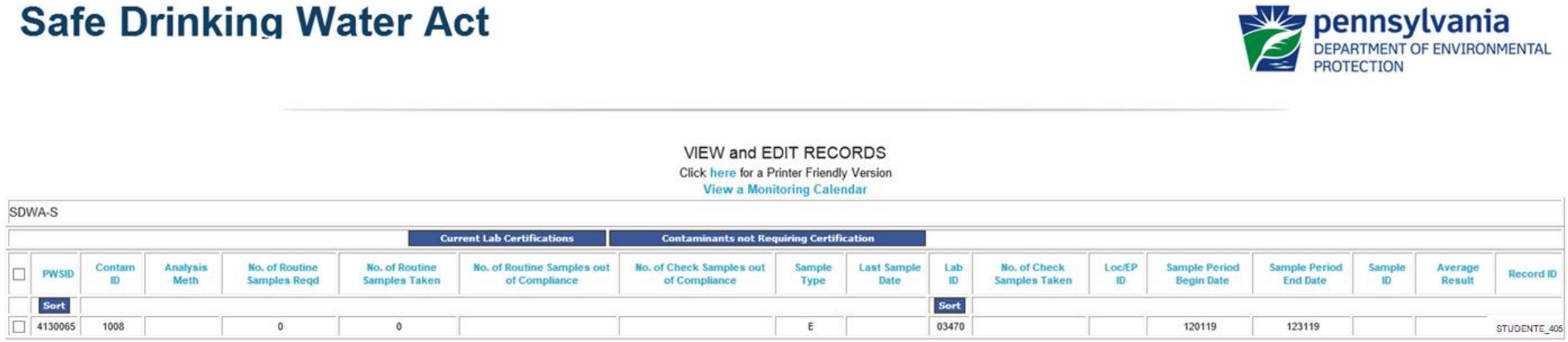
SDWA-S

							Current Lab Certifications			Contaminants not Requiring Certification								
☐	PWSID	Contam ID	Analysis Meth	No. of Routine Samples Reqd	No. of Routine Samples Taken	No. of Routine Samples out of Compliance	No. of Check Samples out of Compliance	Sample Type	Last Sample Date	Lab ID	No. of Check Samples Taken	Loc/EP ID	Sample Period Begin Date	Sample Period End Date	Sample ID	Average Result	Record ID
	Sort									Sort							
☐	4130065	1008		25	25			E		03470			110119	113019			STUDENTE_404

Case 2/Example screenshot 3 SDWA-S SUMMARY ANALYSIS Chlorine Dioxide for December 2019 (Chlorine Dioxide was not used):



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SDWA-S

							Current Lab Certifications			Contaminants not Requiring Certification								
☐	PWSID	Contam ID	Analysis Meth	No. of Routine Samples Reqd	No. of Routine Samples Taken	No. of Routine Samples out of Compliance	No. of Check Samples out of Compliance	Sample Type	Last Sample Date	Lab ID	No. of Check Samples Taken	Loc/EP ID	Sample Period Begin Date	Sample Period End Date	Sample ID	Average Result	Record ID
	Sort									Sort							
☐	4130065	1008		0	0			E		03470			120119	123119			STUDENTE_405

Case 2/Example screenshot 4 SDWA-1 Chlorine Dioxide (EP 101):

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SDWA-1

			Current Lab Certifications					Contaminants not Requiring Certification						
☐	PWSID	Contam ID	Analysis Method	Result	Analysis Date	Location ID 1	Location ID 2	Sample Date	Sample Type	Sample Time	Lab ID	Sample ID	Record ID
	Sort		Sort Entry Point Chlorine					Sort			Sort		
☐	4130065	1008	301	0.5	110219	101		110219	E	0915	03470		STUDENTE_376
☐	4130065	1008	301	0.7	110519	101		110519	E	0900	03470		STUDENTE_377
☐	4130065	1008	301	0.9	110719	101		110719	E	0855	03470		STUDENTE_378
☐	4130065	1008	301	0.8	110819	101		110819	E	0915	03470		STUDENTE_379
☐	4130065	1008	301	0.7	110919	101		110919	E	0840	03470		STUDENTE_380
☐	4130065	1008	301	0.7	111219	101		111219	E	0905	03470		STUDENTE_381
☐	4130065	1008	301	0.6	111619	101		111619	E	0850	03470		STUDENTE_382
☐	4130065	1008	301	0.6	111819	101		111819	E	0915	03470		STUDENTE_383
☐	4130065	1008	301	0.5	112419	101		112419	E	0920	03470		STUDENTE_384
☐	4130065	1008	301	0.4	112819	101		112819	E	0845	03470		STUDENTE_385

Case 2/Example screenshot 4 (Continued) SDWA-1 Chlorine Dioxide (EP 102):

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SDWA-1

	Current Lab Certifications						Contaminants not Requiring Certification					
PWSID	Contam ID	Analysis Method	Result	Analysis Date	Location ID 1	Location ID 2	Sample Date	Sample Type	Sample Time	Lab ID	Sample ID	Record ID
Sort		Sort Entry Point Chlorine					Sort			Sort		
4130065	1008	301	0.7	110219	102		110219	E	1010	03470		STUDENTE_386
4130065	1008	301	0.7	110519	102		110519	E	1000	03470		STUDENTE_387
4130065	1008	301	0.6	110719	102		110719	E	0955	03470		STUDENTE_388
4130065	1008	301	0.6	110819	102		110819	E	1015	03470		STUDENTE_389
4130065	1008	301	0.6	110919	102		110919	E	0940	03470		STUDENTE_390
4130065	1008	301	0.5	111119	102		111119	E	0930	03470		STUDENTE_391
4130065	1008	301	0.4	111219	102		111219	E	1005	03470		STUDENTE_392
4130065	1008	301	0.4	111619	102		111619	E	0950	03470		STUDENTE_393
4130065	1008	301	0.4	111819	102		111819	E	1015	03470		STUDENTE_394
4130065	1008	301	0.4	111919	102		111919	E	0855	03470		STUDENTE_395
4130065	1008	301	0.5	112119	102		112119	E	0925	03470		STUDENTE_396
4130065	1008	301	0.4	112419	102		112419	E	1020	03470		STUDENTE_397
4130065	1008	301	0.3	112719	102		112719	E	0840	03470		STUDENTE_398
4130065	1008	301	0.4	112819	102		112819	E	0945	03470		STUDENTE_399
4130065	1008	301	0.5	112919	102		112919	E	0935	03470		STUDENTE_400

Case 2/Example screenshot 4 (Continued) SDWA-1 Chlorine Dioxide (Distribution):

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SDWA-1

			Current Lab Certifications					Contaminants not Requiring Certification					
☐	PWSID	Contam ID	Analysis Method	Result	Analysis Date	Location ID 1	Location ID 2	Sample Date	Sample Type	Sample Time	Lab ID	Sample ID	Record ID
	Sort			Sort Entry Point Chlorine				Sort			Sort		
☐	4130065	1008	301	0.4	110819	901		110819	D	0600	03470		STUDENTE_401
☐	4130065	1008	301	0.2	110819	901		110819	D	1200	03470		STUDENTE_402
☐	4130065	1008	301	0.2	110819	901		110819	D	1800	03470		STUDENTE_403

CASE 3: THE UNDERGROUND

The Underground is a non-transient, noncommunity water system serving a population of 1,500 people. The water system has two (2) entry points (101 and 102) supplied by groundwater. To provide 4-log treatment of viruses, the system is required to maintain a minimum free chlorine residual of 0.40 mg/L at EP 101 and 0.60 mg/L at EP 102. The Underground is required to perform the following activities, based on the requirements of the *GWR, D/DBPR and DRR*:

- Continuously monitor the disinfectant residual at both entry points, as per special condition in their permit.

- Report the lowest disinfectant residual value and time for each day, if the residual disinfectant concentration is not less than 0.40 mg/L for EP 101 or 0.60 mg/L for EP 102.

- Report the initial date, time and value when the residual is determined to be less than 0.40 mg/L for EP 101 or 0.60 mg/L for EP 102 and report the subsequent date, time and value when the residual is restored to or above the respective minimum required level.

- Report each day that the entry point is not in operation.

- Measure disinfectant residual from the distribution system at the same time and the same locations as the coliform samples taken for compliance with the microbiological MCL and report the individual residual values each month. (A minimum of 4 samples are required for this example (2 for the coliform samples and 2 additional distribution residual samples, if the coliform samples are taken on different weeks; see Section 8: Required Number of Monitoring Samples.)

Note: See the *Laboratory Reporting Instructions for Total Coliform and E. coli Bacteria* manual for coliform monitoring and reporting requirements. Also see the *Laboratory Reporting Instructions for Disinfection Byproducts and Precursors* manual for TTHM and HAA5 monitoring and reporting requirements. The technical guidance manuals are available on the Department of Environmental Protection (DEP) website at http://www.depgreenport.state.pa.us/elibrary/search. Enter "*Laboratory Reporting Instructions*" into the document name search.

During the month of May 2019, the water system had some problems with its disinfection treatment at EP 102. On May 4, 2019, at 10:00 a.m. (1000 hours), the disinfectant residual dropped to 0.57 mg/L (below the required concentration of 0.60 mg/L) for 3 hours and 35 minutes until 1:35 p.m. (1335 hours). Later that day at 7:00 pm (1900 hours), again at EP 102 the disinfectant residual dropped below the required concentration of 0.60 mg/L and was not restored until midnight (0000 hours on May 5, 2019). Consequently, the system was required to notify DEP, because the residual during this second problem remained below the minimum level for more than 4 hours. In addition, on May 6, 2019, the system did not use EP 102 and on May 21 the system did not use EP 101. Also, the distribution chlorine residual at location 702 on May 29, 2019 was below minimum residual at 8:15am, but a second sample at 9:00am was above, at 0.22 mg/L. The average of the two results, 0.18 mg/L, is in compliance.

The following pages show screenshot examples of completed ***SDWA-1*** form for both entry points and distribution system chlorine residual results (screenshot examples 1, 2 and 3).

Case 3/Example screenshot 1 SDWA-1 Screen for Entry Point 101 disinfectant residuals:

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SDWA-1

			Current Lab Certifications				Contaminants not Requiring Certification							
☐	PWSID	Contam ID	Analysis Method	Result	Analysis Date	Location ID 1	Location ID 2	Sample Date	Sample Type	Sample Time	Lab ID	Sample ID	Record ID
	Sort			Sort Entry Point Chlorine				Sort			Sort		
☐	3541000	1013	301	0.65	050119	101		050119	E	1230	01913		STUDENTE_441
☐	3541000	1013	301	1.05	050219	101		050219	E	0800	01913		STUDENTE_442
☐	3541000	1013	301	0.88	050319	101		050319	E	1030	01913		STUDENTE_443
☐	3541000	1013	301	0.84	050419	101		050419	E	1745	01913		STUDENTE_444
☐	3541000	1013	301	0.42	050519	101		050519	E	0800	01913		STUDENTE_445
☐	3541000	1013	301	0.59	050619	101		050619	E	0900	01913		STUDENTE_446
☐	3541000	1013	301	0.74	050719	101		050719	E	1115	01913		STUDENTE_447
☐	3541000	1013	301	0.75	050819	101		050819	E	1300	01913		STUDENTE_448
☐	3541000	1013	301	0.79	050919	101		050919	E	1415	01913		STUDENTE_449
☐	3541000	1013	301	0.75	051019	101		051019	E	2315	01913		STUDENTE_450
☐	3541000	1013	301	0.91	051119	101		051119	E	1000	01913		STUDENTE_451
☐	3541000	1013	301	0.94	051219	101		051219	E	0815	01913		STUDENTE_452
☐	3541000	1013	301	0.97	051319	101		051319	E	2230	01913		STUDENTE_453
☐	3541000	1013	301	0.93	051419	101		051419	E	0900	01913		STUDENTE_454
☐	3541000	1013	301	0.89	051519	101		051519	E	1500	01913		STUDENTE_455
☐	3541000	1013	301	0.82	051619	101		051619	E	1515	01913		STUDENTE_456
☐	3541000	1013	301	0.85	051719	101		051719	E	1830	01913		STUDENTE_457
☐	3541000	1013	301	1.1	051819	101		051819	E	2330	01913		STUDENTE_458
☐	3541000	1013	301	0.88	051919	101		051919	E	1930	01913		STUDENTE_459
☐	3541000	1013	301	0.84	052019	101		052019	E	1745	01913		STUDENTE_460

Case 3/Example screenshot 1 (Continued) SDWA-1 Screen for Entry Point 101 disinfectant residuals:

Entry Point 101 was not used on this day; therefore, the date, EP ID, contaminant code, lab ID and "N" are filled in and the rest should be left blank.

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SDWA-1

			Current Lab Certifications					Contaminants not Requiring Certification					
	PWSID	Contam ID	Analysis Method	Result	Analysis Date	Location ID 1	Location ID 2	Sample Date	Sample Type	Sample Time	Lab ID	Sample ID	Record ID
	Sort		Sort Entry Point Chlorine					Sort			Sort		
☐	3541000	1013				101		052119	N		01913		STUDENTE_461
☐	3541000	1013	301	0.43	052219	101		052219	E	0400	01913		STUDENTE_462
☐	3541000	1013	301	0.92	052319	101		052319	E	1100	01913		STUDENTE_463
☐	3541000	1013	301	0.85	052419	101		052419	E	1415	01913		STUDENTE_464
☐	3541000	1013	301	0.83	052519	101		052519	E	0800	01913		STUDENTE_465
☐	3541000	1013	301	0.82	052619	101		052619	E	1045	01913		STUDENTE_466
☐	3541000	1013	301	0.77	052719	101		052719	E	1715	01913		STUDENTE_467
☐	3541000	1013	301	0.94	052819	101		052819	E	0700	01913		STUDENTE_468
☐	3541000	1013	301	0.96	052919	101		052919	E	1515	01913		STUDENTE_469
☐	3541000	1013	301	0.85	053019	101		053019	E	1215	01913		STUDENTE_470
☐	3541000	1013	301	0.71	053119	101		053119	E	1600	01913		STUDENTE_471

Case 3/Example screenshot 2 SDWA-1 Screen for Entry Point 102 disinfectant residuals:

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The residual fell below 0.60 mg/L on May 4th at 10 AM and was restored at 1:35 PM. It fell below again at 7PM and was restored at midnight – which is 0000 on May 5th.

Entry Point 102 was not used on this day; therefore, the date, EP ID, contaminant code, lab ID and "N" are filled in and the rest should be left blank.

VIEW and EDIT RECORDS

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View a Monitoring Calendar

SDWA-1

	PWSID	Contam ID	Analysis Method	Result	Analysis Date	Location ID 1	Location ID 2	Sample Date	Sample Type	Sample Time	Lab ID	Sample ID	Record ID
	Sort	Current Lab Certifications			Sort Entry Point Chlorine	Contaminants not Requiring Certification		Sort			Sort		
☐	3541000	1013	301	0.68	050119	102		050119	E	1230	01913		STUDENTE_472
☐	3541000	1013	301	0.95	050219	102		050219	E	0800	01913		STUDENTE_473
☐	3541000	1013	301	0.64	050319	102		050319	E	1030	01913		STUDENTE_474
☐	3541000	1013	301	0.57	050419	102		050419	E	1000	01913		STUDENTE_475
☐	3541000	1013	301	0.6	050419	102		050419	E	1335	01913		STUDENTE_476
☐	3541000	1013	301	0.58	050419	102		050419	E	1900	01913		STUDENTE_477
☐	3541000	1013	301	0.6	050519	102		050519	E	0000	01913		STUDENTE_478
☐	3541000	1013				102		050619	N		01913		STUDENTE_479
☐	3541000	1013	301	0.59	050719	102		050719	E	0700	01913		STUDENTE_480
☐	3541000	1013	301	0.74	050819	102		050819	E	2205	01913		STUDENTE_481
☐	3541000	1013	301	0.97	050919	102		050919	E	1330	01913		STUDENTE_482
☐	3541000	1013	301	0.96	051019	102		051019	E	0845	01913		STUDENTE_483
☐	3541000	1013	301	0.87	051119	102		051119	E	0930	01913		STUDENTE_484
☐	3541000	1013	301	0.83	051219	102		051219	E	1430	01913		STUDENTE_485
☐	3541000	1013	301	0.69	051319	102		051319	E	1530	01913		STUDENTE_486
☐	3541000	1013	301	0.72	051419	102		051419	E	1245	01913		STUDENTE_487
☐	3541000	1013	301	1.1	051519	102		051519	E	1400	01913		STUDENTE_488
☐	3541000	1013	301	1.15	051619	102		051619	E	0730	01913		STUDENTE_489
☐	3541000	1013	301	0.95	051719	102		051719	E	0800	01913		STUDENTE_490
☐	3541000	1013	301	0.94	051819	102		051819	E	1515	01913		STUDENTE_491

Case 3/Example screenshot 2 (Continued) SDWA-1 Screen for Entry Point 102:

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View a Monitoring Calendar

SDWA-1

	Current Lab Certifications						Contaminants not Requiring Certification					
☐	PWSID	Contam ID	Analysis Method	Result	Analysis Date	Location ID 1	Location ID 2	Sample Date	Sample Type	Sample Time	Lab ID	Sample ID	Record ID
	Sort		Sort Entry Point Chlorine					Sort			Sort		
☐	3541000	1013	301	0.91	051919	102		051919	E	0915	01913		STUDENTE_492
☐	3541000	1013	301	0.83	052019	102		052019	E	0530	01913		STUDENTE_493
☐	3541000	1013	301	0.86	052119	102		052119	E	0600	01913		STUDENTE_494
☐	3541000	1013	301	0.75	052219	102		052219	E	1445	01913		STUDENTE_495
☐	3541000	1013	301	0.73	052319	102		052319	E	1500	01913		STUDENTE_496
☐	3541000	1013	301	1.12	052419	102		052419	E	1000	01913		STUDENTE_497
☐	3541000	1013	301	0.99	052519	102		052519	E	0945	01913		STUDENTE_498
☐	3541000	1013	301	0.96	052619	102		052619	E	2315	01913		STUDENTE_499
☐	3541000	1013	301	0.89	052719	102		052719	E	1130	01913		STUDENTE_500
☐	3541000	1013	301	0.83	052819	102		052819	E	1300	01913		STUDENTE_501
☐	3541000	1013	301	0.91	052919	102		052919	E	1730	01913		STUDENTE_502
☐	3541000	1013	301	0.94	053019	102		053019	E	1415	01913		STUDENTE_503
☐	3541000	1013	301	0.87	053119	102		053119	E	0945	01913		STUDENTE_504

Case 3/Example screenshot 3 SDWA-1 Screen Distribution chlorine residuals:

Note: to comply with DRR, 5 distribution chlorine residual results required for May 2019.

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SDWA-1

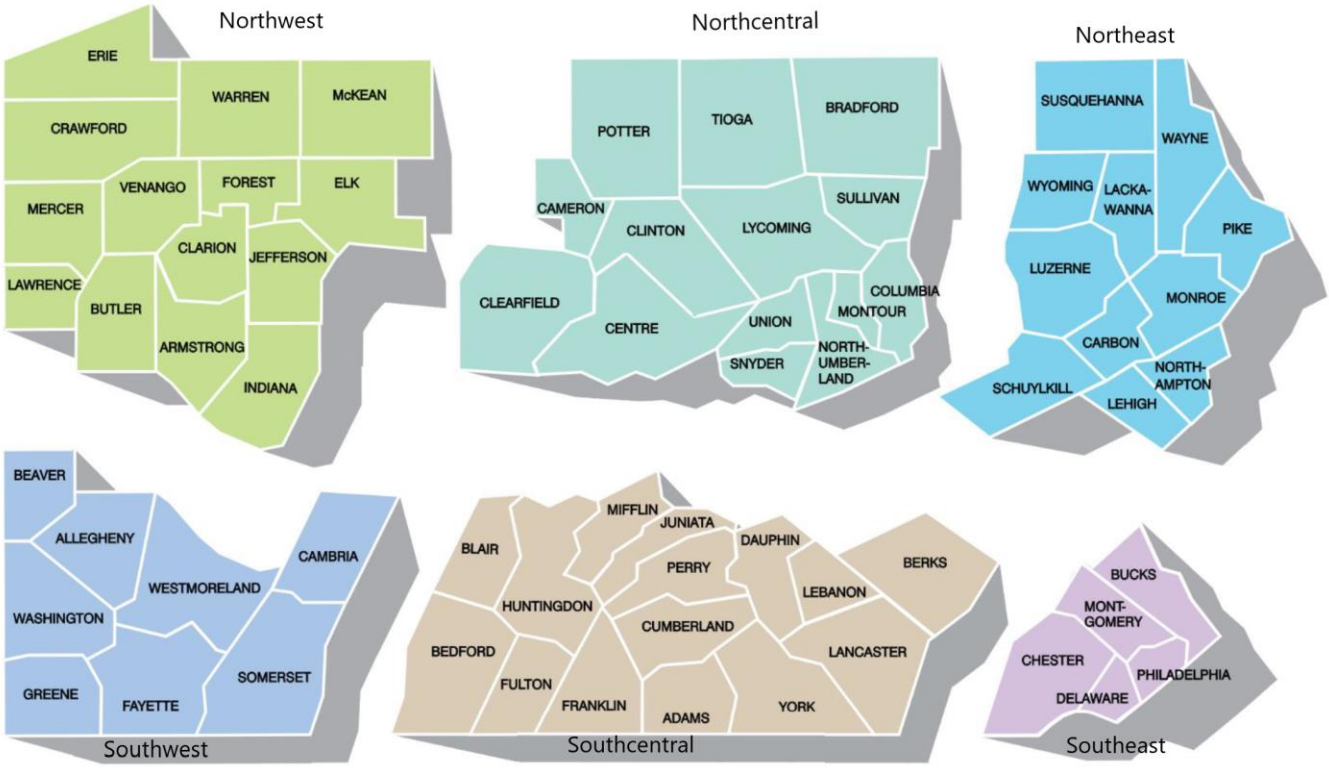
	Current Lab Certifications						Contaminants not Requiring Certification						
	PWSID	Contam ID	Analysis Method	Result	Analysis Date	Location ID 1	Location ID 2	Sample Date	Sample Type	Sample Time	Lab ID	Sample ID	Record ID
	Sort			Sort Entry Point Chlorine				Sort			Sort		
	3541000	1013	301	0.57	050119	701		050119	D	0745	01913		STUDENTE_505
	3541000	1013	301	0.78	050819	703		050819	D	0800	01913		STUDENTE_506
	3541000	1013	301	0.6	051519	702		051519	D	0745	01913		STUDENTE_507
	3541000	1013	301	0.4	052219	701		052219	D	0830	01913		STUDENTE_508
	3541000	1013	301	0.14	052919	702		052919	D	0815	01913		STUDENTE_509
	3541000	1013	301	0.22	052919	702		052919	D	0900	01913		STUDENTE_510

Note: If the average of the two samples on May 29th had not been in compliance, sampling at 702 in June 2019 would have been required if it wasn't already part of their monthly monitoring schedule.

APPENDIX I: Department of Environmental Protection Regional Office and County Health Department (CHD) Contact List

District and CHD addresses by county can be found within DEP document number 3930-FM-BSDW0560. This document can be located by searching under "forms" for document number 3930-FM-BSDW0560 on eLibrary at the following link: http://www.depgreenport.state.pa.us/elibrary/GetFolder?FolderID=3195.

APPENDIX II: Emergency Phone Numbers for the Department of Environmental Protection Regional Offices



DEP Regional Offices

Northwest Region
230 Chestnut St.
Meadville, PA 16335-3481
Main Telephone: 814-332-6945
24-Hour Emergency: 800-373-3398

Counties: *Armstrong, Butler, Clarion, Crawford, Elk, Erie, Forest, Indiana, Jefferson, Lawrence, McKean, Mercer, Venango and Warren*

Northcentral Region
208 W. Third St., Suite 101
Williamsport, PA 17701-6448
Main Telephone: 570-327-3636
24-Hour Emergency: 570-327-3636

Counties: *Bradford, Cameron, Clearfield, Centre, Clinton, Columbia, Lycoming, Montour, Northumberland, Potter, Snyder, Sullivan, Tioga and Union*

Northeast Region
2 Public Square
Wilkes-Barre, PA 18701-1915
Main Telephone: 570-826-2511
24-Hour Emergency: 570-826-2511

Counties: *Carbon, Lackawanna, Lehigh, Luzerne, Monroe, Northampton, Pike, Schuylkill, Susquehanna, Wayne and Wyoming*

Southwest Region
400 Waterfront Drive
Pittsburgh, PA 15222-4745
Main Telephone: 412-442-4000
24-Hour Emergency: 412-442-4000

Counties: *Allegheny, Beaver, Cambria, Fayette, Greene, Somerset, Washington and Westmoreland*

Southcentral Region
909 Elmerton Ave.
Harrisburg, PA 17110-8200
Main Telephone: 717-705-4700
24-Hour Emergency: 800-541-2050

Counties: *Adams, Bedford, Berks, Blair, Cumberland, Dauphin, Franklin, Fulton, Huntingdon, Juniata, Lancaster, Lebanon, Mifflin, Perry and York*

Southeast Region
2 E. Main St.
Norristown, PA 19401-4915
Main Telephone: 484-250-5900
24-Hour Emergency: 484-250-5900

Counties: *Bucks, Chester, Delaware, Montgomery and Philadelphia*

For the most recent emergency numbers, see the DEP webpages: http://www.dep.pa.gov/.

APPENDIX III: SDWA Data Correction Forms

3900-FM-BSDW0147 3/2013

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COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF SAFE DRINKING WATER

SUMMARY ANALYSIS

SDWA-S CORRECTION

Reason for Correction: _____

_____

_____

_____

White Areas: Enter the complete information with the correct information.	**Shaded Areas: Enter the information which was reported incorrectly. Enter only the data which needs to be changed.**
PWS Name: _____	PWS Name: _____
PWS Address: _____	PWS Address: _____
PWS Phone: _____	PWS Phone: _____

	PWSID	PARAM ID	PARAMETER NAME	SAMPLE TYPE
correct				
submitted				

	SAMPLING POINT ID	SAMPLING POINT NAME	SAMPLE PERIOD MMDDYY to MMDDYY	LAST SAMPLE DATE MMDDYY
correct			TO	
submitted			TO	

	NUMBER OF SAMPLES ROUTINE REQUIRED	NUMBER OF SAMPLES ROUTINE TAKEN	NUMBER OF SAMPLES CHECKS TAKEN	ANALYSIS METHOD	NUMBER OF SAMPLES OUT OF COMPLIANCE ROUTINE	NUMBER OF SAMPLES OUT OF COMPLIANCE CHECK
correct						
submitted						

	AVERAGE RESULT	LAB ID	SAMPLE ID	APPROVED BY:
correct				PHONE:
submitted				DATE:

3900-FM-BSDW0143 3/2013

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COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF SAFE DRINKING WATER

BACTERIOLOGICAL / RESIDUAL DISINFECTANT / TURBIDITY / DBP ANALYSIS

SDWA-1 CORRECTION

Reason for Correction: _____

_____

_____

White Areas: Enter the complete information with the correct information.

Shaded Areas: Enter the information which was reported incorrectly. Enter only the data which needs to be changed.

PWS Name:	Reported PWS Name:	**CONTAMINANT NAME**	
Address: _____	Address: _____		
Phone:	Phone:		
PWS ID:	**PWS ID:**	**CONTAM ID:**	**CONTAM ID:**

	ANALYSIS			**LOCATION ID 1**	**LOCATION ID 2**	**SAMPLE**			
	METHOD	**RESULT (Incl. Decimal)**	**MMDDYY**	**(Loc, EP or Plant)**	**(Individual Filter)**	**MMDDYY**	**TYPE**	**TIME**	**SAMPLE ID**
CORRECT DATA									
SUBMITTED DATA									
CORRECT DATA									
SUBMITTED DATA									
CORRECT DATA									
SUBMITTED DATA									
CORRECT DATA									
SUBMITTED DATA									

LAB. NAME: _____ PHONE: _____

APPROVED BY: _____ DATE: _____

LAB ID	