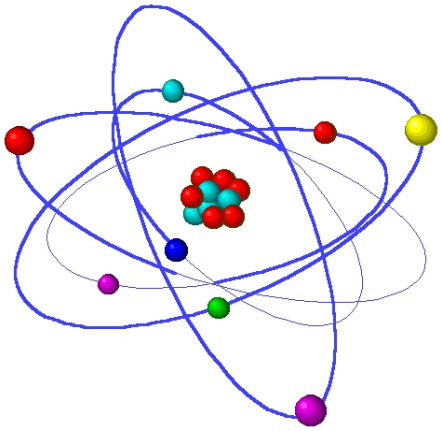
LABORATORY REPORTING INSTRUCTIONS for



RADIOLOGICAL CONTAMINANTS in DRINKING WATER SYSTEMS

GROSS ALPHA PARTICLE RADIOACTIVITY
RADIUM 226
RADIUM 228
URANIUM
GROSS BETA PHOTON RADIOACTIVITY

Technical Guidance Number
393-3301-XXX

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Safe Drinking Water

DOCUMENT NUMBER:	393-3301-XXX
TITLE:	Laboratory Reporting Instructions for Radiological Contaminants in Drinking Water Systems
EFFECTIVE DATE:	Upon publication of notice as final in the *Pennsylvania Bulletin*
AUTHORITY:	Pennsylvania's Safe Drinking Water Act (35 P.S. § 721.1 *et seq.*) and regulations at Title 25 Pa. Code Chapter 109.
POLICY:	The Department of Environmental Protection (DEP) provides directors of accredited laboratories and public water system personnel with the information necessary to properly report radiological analytical compliance monitoring data under the safe drinking water program.
PURPOSE:	The purpose of this document is to establish uniform instructions and a protocol for implementing the drinking water reporting requirements for radiological analytical data.
APPLICABILITY:	This guidance will apply to all accredited laboratories and public water systems that are required to submit drinking water radiological analytical data to DEP.
DISCLAIMER:	The policies and procedures outlined in this guidance document are intended to supplement existing requirements. Nothing in the policies and procedures shall affect regulatory requirements. The policies and procedures herein are not an adjudication or a regulation. DEP does not intend to give this guidance that weight or deference. This document establishes the framework within which DEP will exercise its administrative discretion in the future. DEP reserves the discretion to deviate from this policy statement if circumstances warrant.
PAGE LENGTH:	52 pages
DEFINITIONS:	See 25 Pa. Code Chapter 109

TABLE OF CONTENTS

SECTION 1: INTRODUCTION

The *Laboratory Reporting Instructions for Radiological Contaminants in Drinking Water* technical guidance provides instructions for reporting monitoring results for radiological contaminants in public water supply systems. The monitoring requirements apply to all community water systems (CWSs), at each entry point.

Radioactive materials decay spontaneously produces ionizing radiation. The most common forms of ionizing radiation are alpha and beta particles, or gamma and X-rays. Any living tissue in the human body can be damaged by ionizing radiation. The body attempts to repair the damage, but sometimes the damage is too severe or widespread, or mistakes are made in the natural repair process. The monitoring requirements for the contaminants covered in this manual provide public health protection through reduction of risks from cancer, genetic mutations and kidney damage.

This technical guidance is separated into reporting requirements for the natural radiological contaminants (gross alpha, radium 226, radium 228, and uranium) and the man-made radiological contaminants (gross beta, strontium-90, tritium, iodine-131, major radioactive beta particle constituents).

GENERAL MONITORING AND REPORTING INFORMATION

The Radionuclide Rule sets the following provisions for the natural radiological contaminants:

- Gross Alpha MCL = 15 pCi/L
- Combined Radium MCL = 5 pCi/L
- Uranium MCL = 30 ug/L
- Monitoring is conducted for each parameter at each entry point
- Initial monitoring consists of four consecutive quarterly samples at each entry point
- Repeat monitoring occurs every 3, 6, or 9 years

The Radionuclide Rule sets the following provisions for the man-made radiological contaminants:

- Gross Beta screening level = 50 pCi/L for systems determined to be vulnerable
- Gross Beta screening level = 15 pCi/L for systems determined to be using source waters contaminated by effluent from a nuclear facility
- Beta Particle and Photon Radioactivity MCL = 4 mrem/yr
- Monitoring is conducted at each entry point determined to be vulnerable or as using source waters contaminated by effluent from a nuclear facility
- Routine monitoring for systems determined to be vulnerable consists of four consecutive quarterly samples for Gross Beta and annual samples for Strontium-90 and Tritium at each entry point
- Routine monitoring for systems determined to be using source waters contaminated by effluent from a nuclear facility consists of 12 monthly samples for Gross Beta, quarterly samples for Strontium-90 and Tritium, and a composite analysis of 5 consecutive daily samples once each quarter for Iodine-131
- Reduced monitoring occurs every 3 years.

Drinking water analysis results are entered into the *Pennsylvania Drinking Water Information System* (PADWIS) via *Drinking Water Electronic Laboratory Reporting* (DWELR). PADWIS is a computerized data management system used by DEP to track drinking water monitoring results. An effective surveillance program requires prompt follow-up for MCL, treatment technique, and monitoring violations to protect public health. Your assistance is critical regarding accurate and prompt data reporting.

A SDWA-4 Inorganic/Organic Chemical and Radiological Analysis form is used to report radiological analysis data electronically. The SDWA-4 form allows the reporting of the lower limit of detection and the counting error. Reporting on the SDWA-4 form is explained in Section 5. More instructions about reporting through DWELR are outlined in Section 3 of 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 laboratory and/or water supplier incurring a violation of the Safe Drinking Water Regulations.

SECTION 2: RESPONSIBILITIES OF THE LABORATORY

Under the provisions of Title 25 Pa. Code Chapter 109, Safe Drinking Water Regulations and the PA Safe Drinking Water Act (SDWA), it is the responsibility of the accredited 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 shall 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 shall use to meet the reporting deadline.

2. Report the results within either the first 10 days following the month in which 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 the 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. Maintain information on the personnel who collected and analyzed the samples. If the samples were collected by water system personnel, the laboratory needs to retain a copy of the chain of custody, as per 25 Pa. Code § 252.401.

6. Maintain records, including handwritten data, that allow reconstruction of all laboratory activities associated with testing or analysis of environmental samples (i.e., temperature logs, calibration results, standard and reagent prep logs, results of raw data- samples and associated QC samples, calculations, etc.) for a minimum of 5 years, as required under 25 Pa. Code §§ 109.701 and 252.706. The records need to be complete enough so that assessors can reconstruct the entire analysis and all activities related to generating the final result.

7. Under 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 an MCL, MRDL, action level or a treatment technique performance requirement is exceeded, or a sample result requires the collection of check samples, according to Title 25 Pa. Code § 109.810(b), the accredited laboratory must:

1. Notify the public water supplier by telephone within 1 hour of the laboratory's determination. If the supplier cannot be reached within that time, notify DEP by telephone within 2 hours of the determination with the information listed above. 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. Normal business day begins at 8:00 AM.

   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 replayed to DEP or 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) involved in the exceedance.
   - Level of the parameter (contaminant) found.
   - Where the sample was collected.
   - Dates and times that the sample was collected and analyzed.
   - Name and laboratory identification number.
   - Name and telephone number of a contact person at the laboratory.
   - Steps the laboratory took to contact the PWS before calling DEP or CHD.

2. Notify the appropriate DEP district office in writing within 24 hours of the determination as per 25 Pa. Code § 109.810(b)(2). Please use 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.

- Report any **unadjusted** gross alpha result > 15 pCi/L as an MCL exceedance.
- Report any gross beta result > screening level (15 or 50 pCi/L) as an MCL exceedance.

SECTION 3: ELECTRONIC ASSISTANCE TOOLS

The following electronic assistance tools are available from DEP:

SUBSECTION A: DRINKING WATER ELECTRONIC LABORATORY REPORTING (DWELR)

As provided in 25 Pa. Code §§ 109.701(j) and 109.810, all PWSs and accredited laboratories must use DWELR to report electronically. 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 (by 11:59pm)*** 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 specified in 25 Pa. Code § 252.401(j).

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 will be included in

the next reporting period and may result in monitoring/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 web page.
- **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: RESPONSIBILITIES OF THE WATER SUPPLIER

Under the provisions of Title 25 Pa. Code Chapter 109, Safe Drinking Water Regulations and the PA SDWA, it is the responsibility of the public water supplier to:

1. Report to DEP, within 1 hour of discovery that a primary MCL has been exceeded, per 25 Pa. Code § 109.701(a)(3)(i).

2. Provide appropriate Public Notice for MCL exceedance within the required timeframe, per 25 Pa. Code § 109.407.

3. Ensure the accuracy of data, per 25 Pa. Code § 109.701(i):
    i. Each water supplier shall be responsible for the accurate reporting of data required under subsection (j) to the Department.

    ii. Each water supplier shall be responsible for providing accurate monitoring and sample information to the accredited laboratory that is responsible for reporting data to the Department under § 109.810 (relating to environmental laboratory accreditation). Monitoring and sample information must include, but is not limited to, the monitoring frequency, monitoring period, sample location, and sample type.

4. Maintain records of chemical analysis for at least 12 years, as required under 25 Pa. Code § 109.701(d)(1). The actual laboratory reports may be kept, or data may be transferred to tabular summaries, if the following information is included:
    i. The date, place and time of sampling and the name of the sample collector.
    ii. Identification of the sample: EP sample, check sample, raw or special purpose
    iii. Date of analysis
    iv. The laboratory, certification number and person responsible for performing analysis.
    v. The analytical technique and methods used.
    vi. The results of the analysis.

SECTION 5: REQUIREMENTS FOR NATURAL RADIOLIGICALS

In accordance with 25 Pa. Code § 109.303(a)(4), samples for determining compliance for radionuclides must be taken at each entry point to the distribution system which is representative of each source after an application of treatment during periods of normal operating conditions. If a system draws water from more than one source and sources are combined prior to distribution, the system shall sample at the entry point during periods of normal operating conditions when water is representative of all sources being used as described in the system's comprehensive monitoring plan, required in 25 Pa. Code § 109.718.

SUBSECTION A. MONITORING REQUIREMENTS

Table 5-1 Monitoring Requirements: All Community Water Systems[1]

Contaminants	Initial Monitoring Frequency	Repeat Monitoring Frequency[3]	Monitoring Year	Increased Monitoring:	It is a Violation if:
Gross Alpha (GA), Radium-226, Radium-228, and Uranium GA may be substituted for Radium-226 if GA plus the Counting Error (CE) is ≤ 5 pCi/L GA may be substituted for Uranium if GA plus the CE ≤ 15 pCi/L	4 consecutive quarters at each entry point[2] ***Shortened Sampling Option:*** If the first two quarterly samples for each contaminant at each EP is non-detect, the final two quarters are waived.	If RAA of quarterly results, or if single repeat sample results are: • < Detection limit: 9-year monitoring • ≥ Detection limit to ≤ ½ MCL: 6-year monitoring • > ½ MCL (but ≤ the MCL): 3-year monitoring **Note:** If more than 1 sample collected during a quarter when on quarterly or more than 1 sample during year when on 3, 6, or 9-year frequency, average all samples.	The required repeat monitoring year is based on: • The most recent sampling year • The new monitoring frequency. See Table 5-2 for complete explanation.	If any single sample exceeds the MCL level, sample quarterly, beginning with the next calendar quarter, until 4 consecutive quarters are below the MCL level.	**MCL** RAA of quarterly monitoring exceeds the MCL[4] Any single repeat sample result exceeds 4 times the MCL level. **M/R** **Major:** No samples collected and/or reported during a monitoring period **Minor:** Some, but not all samples collected during a monitoring period

[1] Bottled water systems, vended water systems, retail water facilities, and bulk water hauling systems (BVRB) must sample each EP for gross alpha, radium-226, radium-228, and uranium every 4 years, per 25 Pa. Code § 109.1003(a)(1)(vii)

[2] If average of 4 quarters > MCL, then continue quarterly monitoring until 4 consecutive quarterly results are ≤ MCL.

[3] Annual monitoring is required at entry points where treatment has been installed for radionuclide removal, per 25 Pa. Code § 109.301(14)(i)(B)(V)

[4] For gross alpha, this refers to RAA of *adjusted* results whenever possible.

Important Monitoring Notes:

- If sampling more than once per year, compliance is based on the running annual average (RAA). Report all the entry point results quarterly.
- For initial monitoring, systems may composite the first 4 quarters, but it is not recommended.
- Repeat monitoring schedules are based on the previous monitoring results. See Table 5-2 below.
- Monitoring occurs for each contaminant at each entry point.
- Repeat monitoring for radium-226 and radium-228 is based on the previous cycle's ***combined*** radium-226/radium-228 value.

- For entry points where treatment has been installed, quarterly performance monitoring and annual compliance monitoring must be conducted for the treated contaminant, per 25 Pa. Code § 109.301(14)(i)(B)(V).

Based on the results of the most recent sampling, DEP's data system will store the next required monitoring year for each contaminant. The contaminant must be sampled in the required year, as per 25 Pa Code § 109.301(14)(iii)(B). Sampling early will not reset the monitoring frequency. After each repeat monitoring year, the monitoring frequency and next required monitoring year are reset. See Table 5-2 to help you determine the next monitoring year.

Table Instructions:

1. Find the row that corresponds to the most recent required monitoring year for each contaminant. For initial monitoring, the most recent required year is based on population, as shown below.
2. Move across the row to the column that corresponds to the required frequency for each contaminant to find your next required monitoring year. Repeat for each contaminant at each entry point.

Table 5-2: Required Monitoring Year

Most Recent Required Monitoring Year[1]	Next Required Monitoring Year		
	Required to sample every 3 years sample in:	Required to sample every 6 years sample in:	Required to sample every 9 years sample in:
2011	2014	2017	2020
2012	2015	2018	2021
2013	2016	2019	2022
2014	2017	2020	2023
2015	2018	2021	2024
2016	2019	2022	2025
2017	2020	2023	2026
2018	2021	2024	2027
2019	2022	2025	2028
2020	2023	2026	2029
2021	2024	2027	2030
2022	2025	2028	2031
2023	2026	2029	2032
2024	2027	2030	2033
2025	2028	2031	2034
2026	2029	2032	2035
2027	2030	2033	2036
2028	2031	2034	2037
2029	2032	2035	2038
2030	2033	2036	2039

[1] If an EP needs to continue quarterly monitoring (per column 5 of Table 5-1), the year in which the EP achieves four quarters below the MCL becomes the "Most Recent Required Monitoring Year."

The flowcharts on the following pages display the monitoring requirement for gross alpha, radium-226, radium-228, and uranium.

FIGURE 5.1
INITIAL MONITORING – GROSS ALPHA, RADIUM-226, RADIUM-228, AND URANIUM

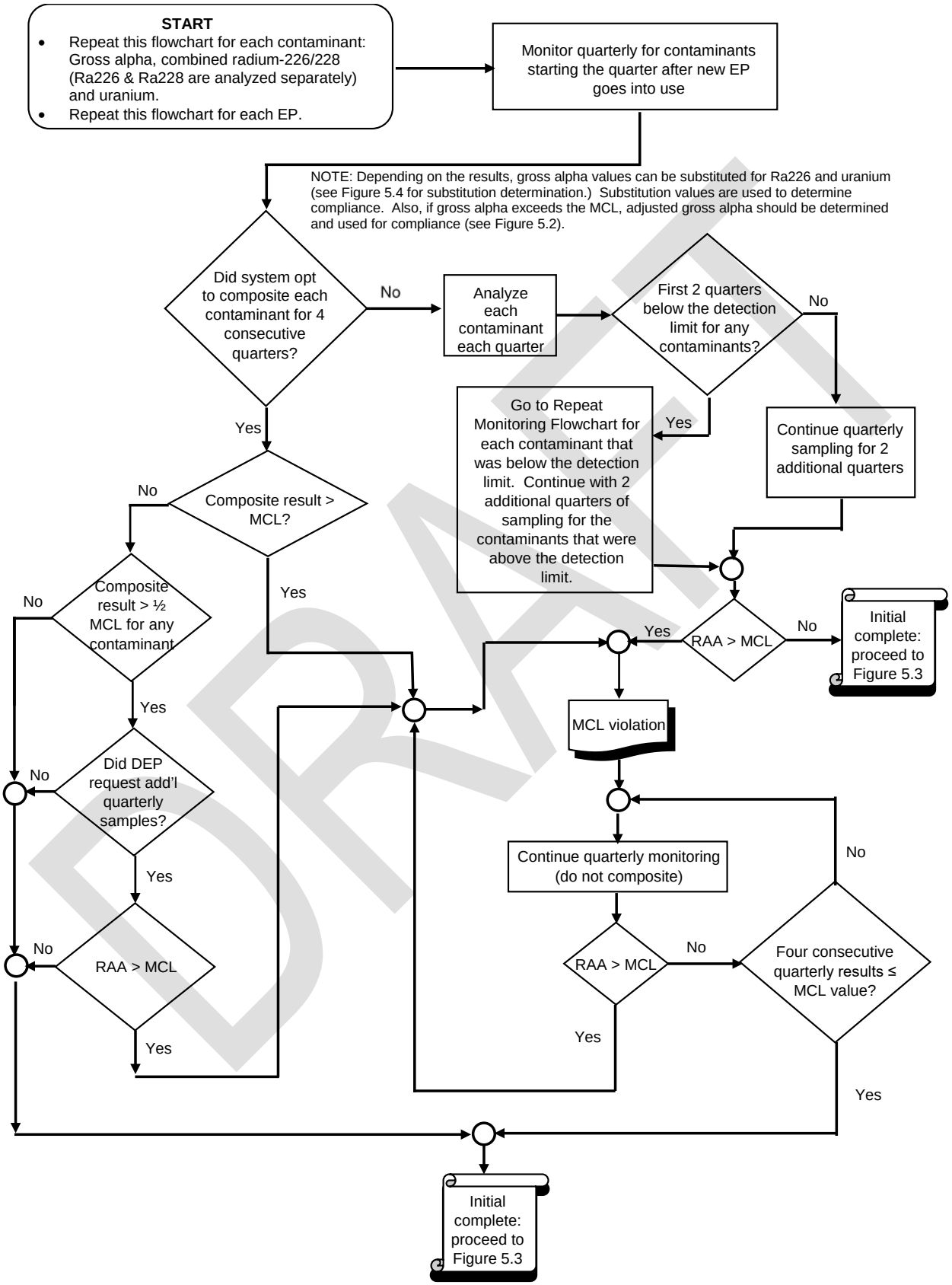


FIGURE 5.2: ADJUSTED GROSS ALPHA DETERMINATION

Note:
When analyzing gross alpha, a system may choose to also analyze uranium. DEP determines an adjusted value using the following procedure.

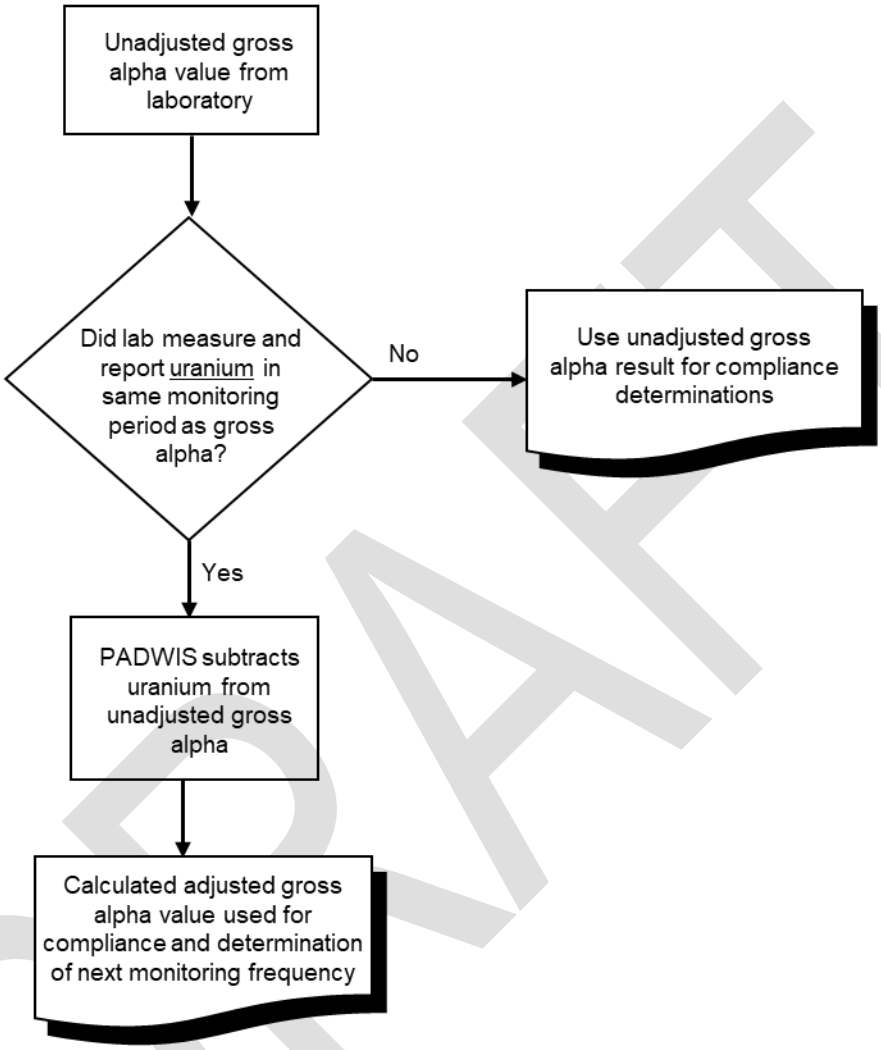


FIGURE 5.3: REPEAT MONITORING: GROSS ALPHA PARTICLE ACTIVITY, RADIUM-226, RADIUM-228, and URANIUM

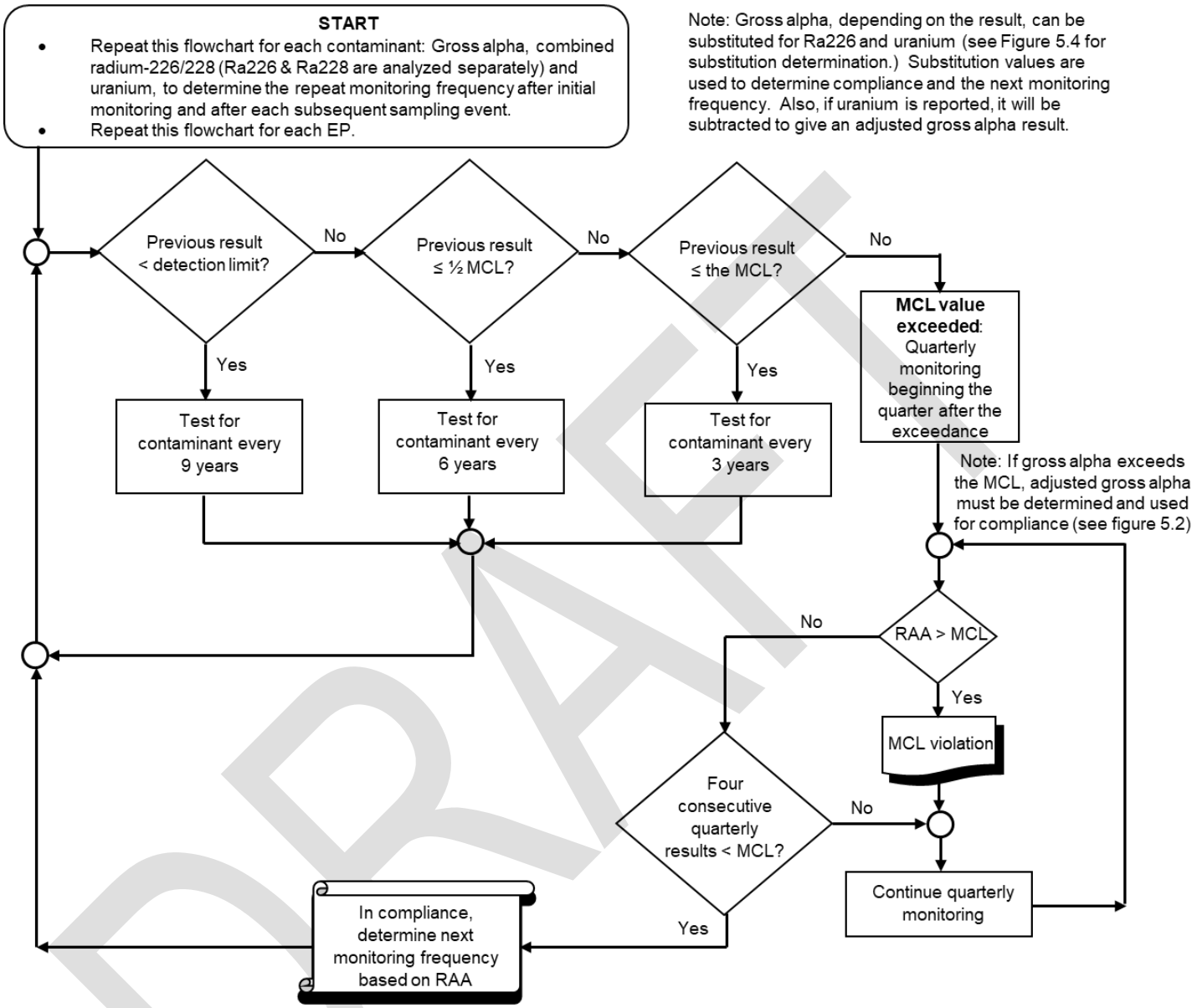
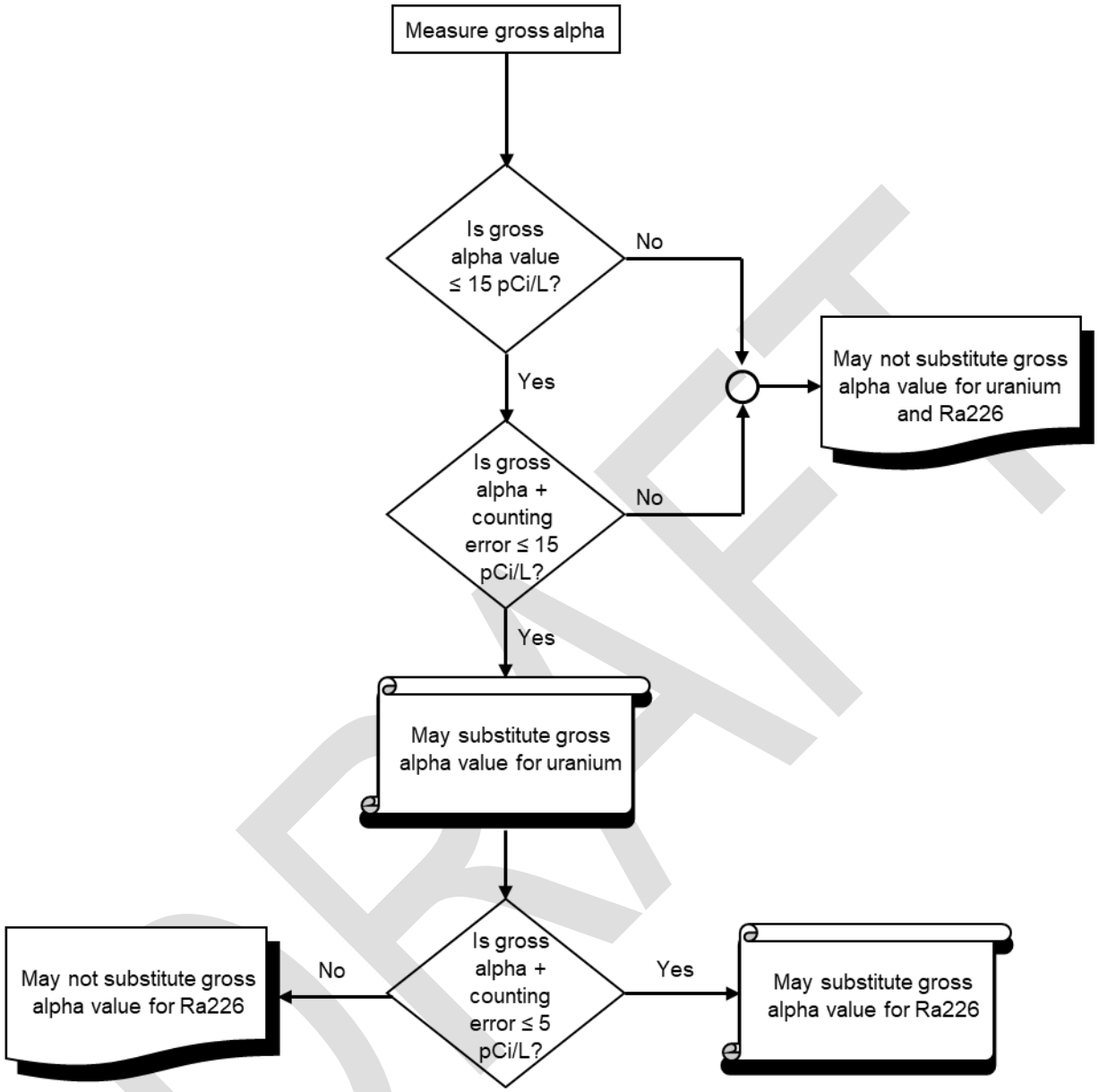


FIGURE 5.4: GROSS ALPHA SUBSTITUTION



SUBSECTION B: REPORTING REQUIREMENTS

Table 5-3

Contaminant	Contaminant ID	MCL	EPA Specified Detection Limit
Gross Alpha particle	4002	15 pCi/L	3 pCi/L
Radium-226	4020		1 pCi/L
Radium-228	4030		1 pCi/L
Combined radium 226/228		5 pCi/L	
Uranium	4006	30 µg/L	1 µg/L

Reporting Summary and Important Notes:

1. For gross alpha:
   - Always report the unadjusted value. Do *no*t subtract uranium. Report uranium separately.
   - Always report the associated counting error on the SDWA-4 form.
   - If the *unadjusted* value is > 15 pCi/L and uranium is not analyzed, report the results to the water supplier and the Department the same as any other MCL exceedance.
2. Do *not* report substituted values. For further explanation of substitutions, see the Result instructions for the SDWA-4 form.
3. If gross alpha is greater than 5 pCi/L (or gross alpha plus the counting error is greater than 5 pCi/L), additional analysis of the same or equivalent sample will be needed for Ra 226 (if Ra 226 monitoring is required). The laboratory and water system should discuss plans for substituting gross alpha results for radium-226 and/or uranium before sample collection and analysis.
4. Report all results in pCi/L, including uranium, even though the MCL is in µg/L. If your analysis produces a mass result (µg/l) for uranium, convert the result to pCi/L. This conversion process is described in the Result instructions for the SDWA-4 form.
5. Any result that is less than the EPA detection limit (shown in Table 5-3) is reported as zero (0). Any value greater than the EPA detection limit and greater than or equal to the laboratory detection limit is a valid detect.

   Example: Gross alpha result = 3.346 pCi/L
   EPA and Laboratory detection limit = 3.0 pCi/L
   This is a valid detect.
6. PADWIS will calculate adjusted gross alpha values, substitution values, and uranium mass values.
7. Composite Analysis Reporting: After the composite sample is analyzed at the end of four quarters, report the composite result on four separate lines. Each line will have a different sample date, the actual sample collection date for the quarterly samples, but the result will be the same. For data tracking purposes, PADWIS needs four quarters of data, even though the result will be the same in each quarter. (Note: The water system should make DEP aware that they plan to composite, as

monitoring/reporting violations will be generated each quarter. Analysis of the composited samples must be done within a year of the first sample, as per 25 Pa. Code § 109.303(g).)

Example:

- Composite Result for Gross Alpha at EP 101: 9.021 pCi/L
- Report the composite result as follows:
  - SDWA-4 line 1: Result = 9.021 pCi/L; Sample Date 02/09/2020
  - SDWA-4 line 2: Result = 9.021 pCi/L; Sample Date 05/17/2020
  - SDWA-4 line 3: Result = 9.021 pCi/L; Sample Date 08/23/2020
  - SDWA-4 line 4: Result = 9.021 pCi/L; Sample Date 10/15/2020

SDWA 4 - INORGANIC / ORGANIC CHEMICAL AND RADIOLOGICAL ANALYSIS

SDWA-4

Current Lab Certifications | Contaminants not Requiring Certification

	PWSID	PWS Name	Contam ID	Analysis Method	Result	Lower Limit of Detection	Counting Error	Analysis Date	Loc/EP ID	Loc/EP ID 2	Sample Date	Sample Type	Sample Time	Lab ID	Sample ID
Copy Previous															

Excel upload format:

Template for SDWA4 Form Data
Row1, *column names*, should remain as provided.
If you create your own spreadsheet file, the first row must be *exactly* as shown here, and all cells must be formatted as "text".
Row2, *data formats*, should be overwritten with data, or deleted.

PWSID	ContamCode	Method	Result	LLD	CE	Anal_Date	Location	Location 2	Samp_Date	Samp_Type	Samptime	Lab_ID	SampleID
1234567	4000	401	1.111	0.11	0.11	110303	111	001	110303	E	1215	12345	111111

DATA FIELD	EXPLANATION
PWS ID	Enter the 7-digit public water system identification number to which these samples apply. Failure to enter the PWS ID will result in the water supplier not receiving credit for conducting the monitoring. If you do not know the PWS ID number, and the PWS cannot provide it to you, contact the local DEP or CHD office or check DWRS.
CONTAMINANT ID	Enter the 4-digit contaminant identification code for the parameter being reported. (See Table 5-3.)
ANALYSIS METHOD	Enter the DEP 3-digit code of the approved analysis method used to analyze the samples (see Section 6.)
RESULT	Enter the result of each sample analyzed to at least 3 decimal places if the result is a valid detect. If any result is less than the EPA specified method detection limit, ***report the result as zero (0)***. Note that the EPA detection limit is a whole number. A. **Gross Alpha:** Report all results in pCi/L. *Always report the unadjusted gross alpha result (contaminant code 4002).* If the gross alpha result, or the gross alpha result plus the counting error, exceeds 15 pCi/L, the same or equivalent sample should also be analyzed for uranium. If uranium is analyzed so that an adjusted gross alpha value may be determined, report the uranium result separately. Do **not** subtract the uranium result from the gross alpha particle activity to obtain an adjusted gross alpha value. B. **Radium-226:** Report all results in pCi/L. If the gross alpha result is to be substituted for radium-226, do *not* report a value for radium-226. C. **Radium-228:** Report all results in pCi/L. NOTE: DO NOT REPORT COMBINED RADIUM. D. **Uranium:** Report all results in pCi/L. If the uranium analysis produces results in terms of activity (pCi/L), report the total or combined uranium value as the result. If the uranium analysis produces results in terms of mass (µg/L) rather than activity (pCi/L), convert the uranium mass to activity using the following formula: $$uranium\ result\ \left(\frac{\mu g}{L}\right)\ x\ \left(0.67\frac{pCi}{\mu g}\right) = uranium\ result\ \left(\frac{pCi}{L}\right)$$ If the gross alpha result is to be substituted for uranium, do *not* report a value for uranium.

DATA FIELD	EXPLANATION
LOWER LIMIT OF DETECTION (LLD)	Report the measured LLD for each radiological contaminant. If the LLD is above the EPA specified method detection limit, the result is not valid and *should not be reported*. If high TDS caused interferences, you may need to run the sample for a longer count time to achieve an acceptable LLD. For questions or concerns regarding the LLD, contact Pa DEP Bureau of Laboratories.
COUNTING ERROR (CE)	Report the counting error for gross alpha analyses only. The measured gross alpha value plus the counting error is equal to a confidence interval of 95%.
ANALYSIS DATE	Enter the date (MMDDYY) on which the sample analysis was performed or if the analysis spanned more than one day, the date on which the analysis is completed, and result obtained.
LOCATION/ENTRY POINT ID	Enter the 3-digit Entry Point ID number assigned to the sampling point by the local DEP or CHD office. If the water supplier has not provided this ID number to you, then contact the water supplier or the local DEP or CHD office. Entry Point ID numbers always begin with "1" (e.g., 100, 102, 103…).
LOCATION 2	Enter the source ID and name or enter MIX in the ID, if a blend of sources
SAMPLE DATE	Enter the date (MMDDYY) on which the sample was collected.
SAMPLE TYPE	Enter the appropriate letter code which corresponds to the type of sample collected as follows: C = Check: Confirmation samples taken in response to repeat or initial samples that are detected at a level in excess of the MCL. E = Entry Point: Samples taken at the entry point to the distribution system. S = Special: A supplier may wish to collect and have analyzed special samples to meet their own need or may be required by DEP or a CHD to take samples to fulfill a special requirement. For example, a PWS may be asked to take delinquent samples after a monitoring period has ended. Such samples are coded "S" to distinguish them from routine "E" samples which may be taken during the same period. R = Raw Water: A supplier may wish to collect and have analyzed samples of raw water to meet their particular need, such as new source sampling. Such samples will not be credited toward routine monitoring requirements. P = Plant: Performance monitoring samples that are collected after the radionuclide treatment process, but before the entry point sampling location.
SAMPLE TIME	Enter the time the sample was collected in Military Time (e.g., enter 1:30 pm as 1330).
LAB ID	Enter the 5-digit PA Certification Identification Code assigned to the laboratory that conducted the analysis.

DATA FIELD	EXPLANATION
SAMPLE ID	(Optional) Enter the unique laboratory sample identification

SECTION 6: SUMMARY OF CODES FOR REPORTING NATURAL RADIOLOGICALS

Please note that there are additional online methods approved for these analyses that are not included in the tables below. Refer to the current version of 40 CFR 141.25 for a listing of all approved methods.

PARAM NAME	PARAM ID	ANALYSIS METHOD	ANALYSIS METHOD AVAILABILITY	DEP METHOD CODE
Gross Alpha by Evaporation	4002 (unadjusted gross alpha)	EPA 900.0 - Prescribed Procedures for Measurement of Radioactivity in Drinking Water (EPA/600/4-80-032) August 1980.	National Technical Information Service (NTIS): PB 80-224744	401
		EPA 900.0 Rev 1.0 -Gross Alpha and Gross Beta Radioactivity in Drinking Water (EPA 815-B-18-002) February 2017	National Service Center for Environmental Publications (EPA Method 900.0 Rev 1.0).	
		Interim Radiochemical Methodology for Drinking Water (EPA 600/4-75-008) (revised) March 1976 – Page 1	National Technical Information Service (NTIS): PB 253258	
		EPA 00-01 - Radiochemistry Procedures Manual (EPA 520/5-84-006) December 1987	National Technical Information Service (NTIS): PB 84-215581	
		Radiochemical Analytical Procedures for Analysis of Environmental Samples, March 1979 – Page 1	National Technical Information Service (NTIS): EMSL LV 053917	
		SM 302 - Standard Methods for the Examination of Water and Wastewater, 13th (1971) Edition	American Water Works Assn. (AWWA) - Included in 13th Edition of Standard Methods (1971)	
		SM 7110 B - Standard Methods for the Examination of Water and Wastewater, 17th (1989), 18th (1992), 19th (1995), 20th (1998), 21st (2005), 22nd (2012) and 23rd (2017) Editions	American Water Works Assn. (AWWA) - Included in 17th (1989), 18th (1992), 19th (1995), 20th (1998), 21st (2005), 22nd (2012) and 23rd (2017) Editions of Standard Methods	

PARAM NAME	PARAM ID	ANALYSIS METHOD	ANALYSIS METHOD AVAILABILITY	DEP METHOD CODE
		USGS R-1120-76 - Methods for the Determination of Radioactive Substances in Water and Fluvial Sediments	U.S. Geological Survey - Found in Chapter A5 of Book 5, Techniques of Water- Resources Investigations of the USGS (1977)	
Gross Alpha by Co-precipitation	4002 (unadjusted gross alpha)	EPA 00-02 - Radiochemistry Procedures Manual (EPA 520/5-84-006) December 1987	National Technical Information Service (NTIS) - PB 84-215581	402
		SM 7110 C - Standard Methods for the Examination of Water and Wastewater, 18th (1992), 19th (1995), 20th (1998), 21st (2005), 22nd (2012), and 23rd (2017) Editions	American Water Works Assn. (AWWA) - Included in 18th (1992), 19th (1995), 20th (1998), 21st (2005), 22nd (2012) and 23rd (2017) Editions of Standard Methods	
Gross Alpha by Liquid Scintillation	4002 (unadjusted gross alpha)	SM 7110 D-17 – Standard Methods for the Examination of Water and Wastewater	Online version	427
		ASTM D7283-17	ASTM International - Only method listed may be used.	
Radium 226 using Radon Emanation Technique	4020	EPA 903.1 - Prescribed Procedures for Measurement of Radioactivity in Drinking Water (EPA/600/4-80-032) August 1980	National Technical Information Service (NTIS) - PB 80-224744	417
		Interim Radiochemical Methodology for Drinking Water (EPA 600/4-75-008) (revised) March 1976 – Page 16	National Technical Information Service (NTIS) - PB 253258	
		EPA Ra-04 – Radiochemistry Procedures Manual (EPA 520/5-84-006) December 1987	National Technical Information Service (NTIS) - PB 84-215581	
		Radiochemical Analytical Procedures for Analysis of Environmental Samples, March 1979 – Page 19	National Technical Information Service (NTIS) - EMSL LV 053917	

PARAM NAME	PARAM ID	ANALYSIS METHOD	ANALYSIS METHOD AVAILABILITY	DEP METHOD CODE
		SM 305 – Standard Methods for the Examination of Water and Wastewater, 13th (1971) Edition	American Water Works Assn. (AWWA) - Included in 13th Edition of Standard Methods (1971)	
		SM 7500-Ra C – Standard Methods for the Examination of Water and Wastewater, 17th (1989), 18th (1992), 19th (1995), 20th (1998), 21st (2005), 22nd (2012) and 23rd (2017) Editions	American Water Works Assn. (AWWA) - Included in 17th (1989), 18th (1992), 19th (1995), 20th (1998), 21st (2005), 22nd (2012) and 23rd (2017) Editions of Standard Methods	
		ASTM D3454-97, 05 – Annual Book of ASTM Standards, Vol 11.01 and 11.02	ASTM International - any year containing the cited version of the method may be used.	
		USGS R-1141-76 - Methods for the Determination of Radioactive Substances in Water and Fluvial Sediments	U.S. Geological Survey - Found in Chapter A5 of Book 5, Techniques of Water- Resources Investigations of the USGS (1977)	
		DOE Ra-04 – EML Procedures Manual, 28th (1998) or 27th (1990) Editions, Volumes 1 and 2; either edition may be used.	Department of Energy (DOE) - In the 27th edition, Method Ra-04 is listed as Ra-05. Available through the Environmental Measurements Laboratory of DOE	
		Determination of Ra-226 and Ra-228 (Ra-02), January 1980, Revised June 1982	Radiological Sciences Institute Center for Laboratories and Research - Method written by the NY State Dept. of Health	
Radium 226 using Radiochemical Methodology	4020	EPA 903.0 - Prescribed Procedures for Measurement of Radioactivity in Drinking Water (EPA/600/4-80-032) August 1980	National Technical Information Service (NTIS) - PB 80-224744	407

PARAM NAME	PARAM ID	ANALYSIS METHOD	ANALYSIS METHOD AVAILABILITY	DEP METHOD CODE
		Interim Radiochemical Methodology for Drinking Water (EPA 600/4-75-008) (revised) March 1976 - Page 13	National Technical Information Service (NTIS) - PB 80-224744	
		EPA Ra-03- Radiochemistry Procedures Manual (EPA 520/5-84-006) December 1987	National Technical Information Service (NTIS) - PB 84-215581	
		SM 304 - Standard Methods for the Examination of Water and Wastewater, 13th (1971) Edition	American Water Works Assn. (AWWA) - Included in 13th Edition of Standard Methods (1971)	
		SM 7500-Ra B - Standard Methods for the Examination of Water and Wastewater, 17th (1989), 18th (1992), 19th (1995), 20th (1998), 21st (2005), 22nd (2012) and 23rd (2017) Editions	American Water Works Assn. (AWWA) - Included in 17th (1989), 18th (1992), 19th (1995), 20th (1998), 21st (2005), 22nd (2012) and 23rd (2017) Editions of Standard Methods	
		ASTM D2460-97, 07 - Annual Book of ASTM Standards, Vol 11.01 and 11.02	ASTM International - any year containing the cited version of the method may be used.	
		USGS R-1140-76 - Methods for the Determination of Radioactive Substances in Water and Fluvial Sediments	U.S. Geological Survey - Found in Chapter A5 of Book 5, Techniques of Water- Resources Investigations of the USGS (1977)	
Radium 226 using Gamma-ray Spectrometry	4020	Determination of Radium-226 and Radium-228 in Drinking Water by Gamma-ray Spectrometry Using HPGE or Ge(Li) Detectors, Revision 1.2, December 2004	Environmental Resources Center, Georgia Institute of Technology	416

PARAM NAME	PARAM ID	ANALYSIS METHOD	ANALYSIS METHOD AVAILABILITY	DEP METHOD CODE
		SM 7500-Ra E – Standard Methods for the Examination of Water and Waste Water, 22nd (2012) and 23rd (2017) Editions	American Water Works Assn. (AWWA) - Included in 22nd (2012) and 23rd (2017) Editions of Standard Methods	
Radium 228 using Radiochemical Methodology	4030	EPA 904.0 - Prescribed Procedures for Measurement of Radioactivity in Drinking Water (EPA/600/4-80-032) August 1980.	National Technical Information Service - PB 80-224744	419
		Interim Radiochemical Methodology for Drinking Water (EPA 600/4-75-008) (revised) March 1976 - Page 24	National Technical Information Service - PB 253258	
		EPA Ra-05 - Radiochemistry Procedures Manual (EPA 520/5-84-006) December 1987	National Technical Information Service - PB 84-215581	
		Radiochemical Analytical Procedures for Analysis of Environmental Samples, March 1979 - Page 19	National Technical Information Service - EMSL LV 053917	
		SM 7500-Ra D - Standard Methods for the Examination of Water and Wastewater, 17th (1989), 18th (1992), 19th (1995), 20th (1998), 21st (2005), 22nd (2012) and 23rd (2017) Editions	American Water Works Assn. (AWWA) - Included in 17th (1989), 18th (1992), 19th (1995), 20th (1998), 21st (2005), 22nd (2012) and 23rd (2017) Editions of Standard Methods	
		USGS R-1142-76 - Methods for the Determination of Radioactive Substances in Water and Fluvial Sediments	U.S. Geological Survey - Found in Chapter A5 of Book 5, Techniques of Water- Resources Investigations of the USGS (1977)	

PARAM NAME	PARAM ID	ANALYSIS METHOD	ANALYSIS METHOD AVAILABILITY	DEP METHOD CODE
		Determination of Ra-226 and Ra-228 (Ra-02), January 1980, Revised June 1982	Radiological Sciences Institute Center for Laboratories and Research - Method written by the NY Dept. of Health	
		Determination of Ra-228 in Drinking Water (August 1980)	State of NJ, Dept of Environmental Protection - Method written by the State of NJ, Dept. of Env. Prot.	
Radium 228 using Gamma-ray Spectrometry	4030	Determination of Radium-226 and Radium-228 in Drinking Water by Gamma-ray Spectrometry Using HPGE or Ge(Li) Detectors, Revision 1.2, December 2004	Environmental Resources Center, Georgia Institute of Technology	416
		SM 7500-Ra E – Standard Methods for the Examination of Water and Waste Water, 22nd (2012) and 23rd (2017) Editions	American Water Works Assn. (AWWA) - Included in 22nd (2012) and 23rd (2017) Editions of Standard Methods	
Uranium using Radiochemical Methodology	4006	EPA 908.0 - Prescribed Procedures for Measurement of Radioactivity in Drinking Water (EPA/600/4-80-032) August 1980.	National Technical Information Service - PB 80-224744	421
		SM 7500-U B - Standard Methods for the Examination of Water and Wastewater, 17th (1989), 18th (1992), 19th (1995), 20th (1998), 21st (2005), 22nd (2012) and 23rd (2017) Editions	American Water Works Assn. - Included in 17th (1989), 18th (1992), 19th (1995), 20th (1998), 21st (2005), 22nd (2012) and 23rd (2017) Editions of Standard Methods	
Uranium using Fluorometric Methodology	4006	EPA 908.1 - Prescribed Procedures for Measurement of Radioactivity in Drinking Water (EPA/600/4-80-032) August 1980.	National Technical Information Service - PB 80-224744	422

PARAM NAME	PARAM ID	ANALYSIS METHOD	ANALYSIS METHOD AVAILABILITY	DEP METHOD CODE
		SM 7500-U C - Standard Methods for the Examination of Water and Wastewater, 17th (1989)	American Water Works Assn. - Included in 17th (1989) Editions of Standard Methods	
		ASTM D2907-97 - Annual Book of ASTM Standards, Vol 11.01 and 11.02	ASTM International - any year containing the cited version of the method may be used.	
		USGS R-1180-76 and R-1181-76 - Methods for the Determination of Radioactive Substances in Water and Fluvial Sediments	U.S. Geological Survey - Found in Chapter A5 of Book 5, Techniques of Water- Resources Investigations of the USGS (1977)	
		DOE U-04 - EML Procedures Manual, 28th (1998) or 27th (1990) Editions, Volumes 1 and 2; either edition may be used	Department of Energy (DOE) - Available through the Environmental Measurements Laboratory of DOE	
Uranium using ICP-MS Methodology	4006	EPA 200.8 - Determination of Trace Elements in Waters and Wastes by Inductively Coupled Plasma-Mass Spectrometry" Revision 5.4 which is published in "Methods for the Determination of Metals in Environmental Samples - Supplement I," EPA 600-R-94-111, May 1994.	PB 95-125472 - National Technical Information Service	170
		SM 3125 - Standard Methods for the Examination of Water and Wastewater, 20th (1998) and 21st (2005) Edition	American Water Works Assn. - Included in 20th (1998) and 21st (2005) Edition of Standard Methods	
		ASTM D5673-03, 05, 10, 16 - Annual Book of ASTM Standards, Vol 11.01 and 11.02	ASTM International - any year containing the cited version of the method may be used.	
Uranium using Alpha Spectrometry	4006	EPA 00-07 - Radiochemistry Procedures Manual (EPA 520/5-84-006) December 1987	National Technical Information Service - PB 84-215581	423

PARAM NAME	PARAM ID	ANALYSIS METHOD	ANALYSIS METHOD AVAILABILITY	DEP METHOD CODE
		Radiochemical Analytical Procedures for Analysis of Environmental Samples, March 1979 - Page 33	National Technical Information Service - EMSL LV 053917	
		SM 7500-U C - Standard Methods for the Examination of Water and Wastewater, 18th (1992), 19th (1995) and 20th (1998), 22nd (2012) and 23rd (2017) Editions	American Water Works Assn. - Included in 18th (1992), 19th (1995) and 20th (1998), 22nd (2012) and 23rd (2017) Editions of Standard Methods	
		ASTM D3972-97, 02, 09 - Annual Book of ASTM Standards, Vol 11.01 and 11.02	ASTM International - any year containing the cited version of the method may be used.	
		USGS R-1182-76 - Methods for the Determination of Radioactive Substances in Water and Fluvial Sediments	U.S. Geological Survey - Found in Chapter A5 of Book 5, Techniques of Water- Resources Investigations of the USGS (1977)	
		DOE U-02 - EML Procedures Manual, 28th (1997) or 27th (1990) Editions, Volumes 1 and 2; either edition.	Department of Energy (DOE) - Available through the Environmental Measurements Laboratory of DOE	
Uranium by Laser Phosphorimetry	4006	ASTM D5174-97, 02, 07 - Annual Book of ASTM Standards, Vol 11.01 and 11.02	ASTM International - any year containing the cited version of the method may be used.	424
Uranium using Alpha Liquid Scintillation Spectrometry	4006	ASTM D6239-09 – Annual Book of ASTM Standards, Vol 11.02	ASTM International - any year containing the cited version of the method may be used.	428

SECTION 7: REQUIREMENTS FOR MAN-MADE RADIOLOGICALS

This section applies to all CWSs that are designated by DEP to be vulnerable to beta particle and/or photon radioactivity or designated as using waters contaminated by effluent from a nuclear facility.

In accordance with 25 Pa. Code § 109.303(a)(4), samples for determining compliance for radionuclides must be taken at each entry point to the distribution system which is representative of each source after an application of treatment during periods of normal operating conditions. If a system draws water from more than one source and sources are combined prior to distribution, the system shall sample at the entry point during periods of normal operating conditions when water is representative of all sources being used as described in the system's comprehensive monitoring plan, required in 25 Pa. Code § 109.718.

SUBSECTION A. MONITORING REQUIREMENTS

Monitoring Summary of 25 Pa Code § 109.301(14)(ii):

- Systems designated as vulnerable to beta particle or photon activity must monitor for gross beta, tritium, and strontium-90 in addition to the gross alpha monitoring required for all community water systems. Systems designated as using waters contaminated by effluents from a nuclear facility must sample for these same contaminants in addition to iodine-131.
- Vulnerable systems must collect quarterly samples for gross beta and annual samples for tritium and strontium-90. Monitoring can be reduced to every 3 years.
- Systems designated as using water contaminated by effluents must collect monthly samples for gross beta, quarterly samples for tritium and strontium-90, and a composite of 5 consecutive daily samples each quarter for iodine-131.
- The MCL for beta particle and photon radioactivity is 4 millirem/yr (mrem/yr) and is based on the annual dose equivalent to the total body or any internal organ. DEP will determine the annual dose equivalent for each of the major radioactive constituents listed and determine the total summed dose.
- The same or equivalent sample must be analyzed for the major radioactive constituents whenever any of the following occurs:
  - Gross beta exceeds the screening level
  - Strontium-90 exceeds 8 pCi/L
  - Tritium exceeds 20,000 pCi/L
  - Iodine-131 exceeds 3.37 pCi/L

  Contact DEP for additional information and reporting instructions whenever individual constituent analysis for beta particle and photon radioactivity is required.

TABLE 7-1: Gross Beta Monitoring Requirements – Vulnerable EPs

Contaminants	Routine Monitoring	Reduced Monitoring	Exceedance Determination	Increased Monitoring
Gross Beta, Tritium & Strontium-90	Beginning one quarter after being notified by the DEP: • Gross beta – Quarterly for ≥ 4 quarters (RAA) • Tritium and strontium-90 – Annually	If gross beta activity minus the naturally occurring K-40 has RAA ≤ 50 pCi/L: • 4 quarterly samples every 3 years for gross beta • One sample every 3 years for Tritium and Strontium-90	If quarterly gross beta result >50 pCi/L at an EP, analyze same or equivalent sample to identify all major radioactive constituents present (including strontium-90 and tritium). Using the results from the individual constituent analysis, the dose to the total body or organs will be calculated by PADWIS, summed, and compared to the MCL of 4 mrem/yr. **Tritium and Strontium-90:** At the end of the calendar year in which they are due, PADWIS will calculate total body or organ dose from tritium and strontium-90 and compare to MCL of 4 mrem/yr **Return to Quarterly:** If the dose is ≤4 mrem/yr, return to quarterly monitoring for gross beta and annual for tritium/strontium-90.	If the dose equivalent > 4 mrem/yr, monitor for all major constituents monthly until a rolling average of 3 monthly doses is ≤ the MCL. Once MCL is met, return to quarterly monitoring for gross beta and annual for tritium and strontium-90.

Important Monitoring Notes:

- Monitoring for beta particle and photon radioactivity begins the quarter after being notified by the Department.
- If sampling more than once per year, compliance is based on the running annual average (RAA). Report all the entry point results quarterly.
- Reduced monitoring is summarized in the table above.

TABLE 7-2: Gross Beta Monitoring Requirements – "Contaminated" EPs

Contaminants	Routine Monitoring	Exceedance Determination	Increased Monitoring
Gross beta, strontium-90, tritium, iodine-131	**Gross beta:** Monthly (averaged each quarter) **Strontium-90 and Tritium:** Quarterly **Iodine-131:** Composite of 5 consecutive daily samples each quarter **Reduced Monitoring:** If gross beta RAA ≤ 15 pCi/L at an EP, repeat the frequencies above every 3 years for a period of 4 quarters.	**Gross beta:** If quarterly average > 15 pCi/L, analyze same or equivalent sample to identify all major radioactive constituents present (including strontium-90 and tritium) Using the results from the individual constituent analysis, the dose to the total body or organs will be calculated by PADWIS, summed, and compared to the MCL of 4 mrem/yr. Return to quarterly monitoring if dose is ≤ 4 mrem/yr. **Stontium-90, Tritium, and Iodine-131:** After each quarter, DEP will calculate total body or organ dose from each and compare it to the MCL of 4 mrem/yr. If dose ≤ 4 mrem/yr, continue monitoring at the same frequency.	If the dose equivalent > 4 mrem/yr, monitor for all major constituents monthly until a rolling average of 3 monthly doses is ≤ the MCL. Once MCL is met, return to routine monitoring frequency in column 2.

The flowcharts on the following pages display the monitoring requirements for gross beta particle activity, tritium, and strontium-90.

FIGURE 7.1
GROSS BETA CONSTITUENT MONITORING REQUIREMENTS – VULNERABLE EPS

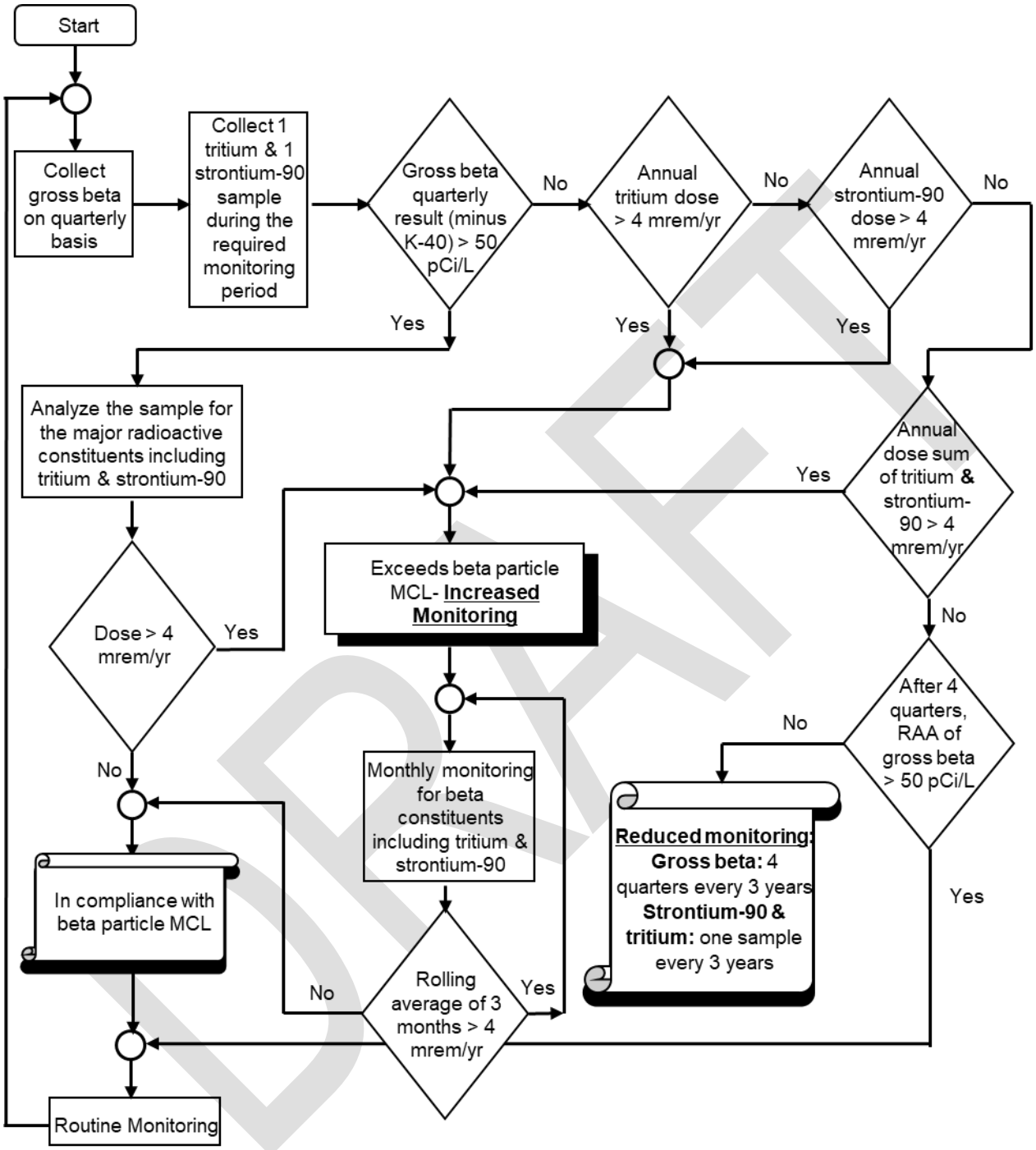
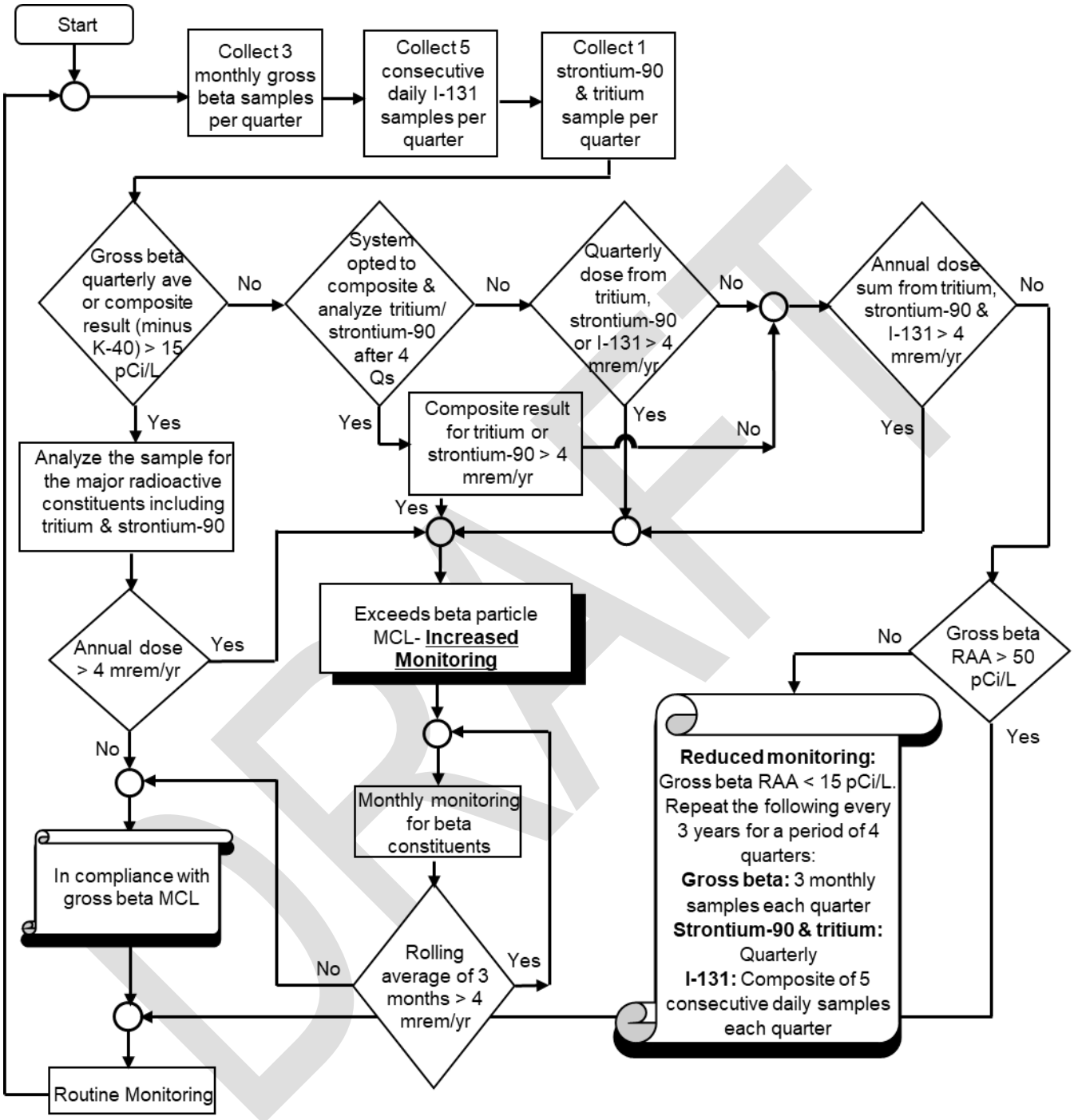


FIGURE 7.2
GROSS BETA CONSTITUENT MONITORING REQUIREMENTS – CONTAMINATED EPS



SUBSECTION B: REPORTING REQUIREMENTS

Table 7-3

Contaminant	Contaminant ID	Screening Level or Equivalent Dose	MCL	EPA Method Detection Limit
Gross Beta - Vulnerable	4100	50 pCi/L		4 pCi/L
Gross Beta - Contaminated		15 pCi/L		4 pCi/L
Tritium	4102	20,000 pCi/L		1,000 pCi/L
Strontium-90	4174	8 pCi/L		2 pCi/L
Iodine-131	4264	3.37 pCi/L		1 pCi/L
Beta particle and photon radioactivity			4 mrem/yr	Varies by constituent
Potassium (elemental)	1042			
Potassium-40	4044			

Important Reporting Notes:

1. Any result that is less than the EPA detection limit (shown above) should be reported as zero (0). Any value greater than the EPA detection limit and greater than or equal to the laboratory detection limit is a valid detect.

   Example: Laboratory detection limit = 3 pCi/L but the EPA detection limit = 4 pCi/L
   Gross beta result = 4.310 pCi/L; this is a valid detect.

2. Report all results in pCi/L.

3. Do not convert activity values (pCi/L) to dose values (mrem/yr). PADWIS will perform this calculation.

4. The rule allows for the subtraction of naturally occurring potassium-40 from gross beta results, per 25 Pa. Code § 109.301(14)(ii)(D). If potassium-40 is analyzed, report in pCi/L. Alternatively, elemental potassium may be analyzed and reported in mg/L. PADWIS will convert this value to activity before subtracting it from the gross beta result. PADWIS will then calculate the adjusted gross beta value by subtracting the potassium-40 contribution.

5. If beta particle activity minus potassium-40 exceeds the screening level (50 or 15 pCi/L), *notify the water system **and** DEP immediately (within 1 hour)*. If potassium-40 is not analyzed, notification to the water system and DEP is still required based on the gross beta result. The same or equivalent sample must be analyzed to determine the major radioactive constituents present, per 25 Pa Code § 109.301(14)(ii)(E). When analysis of the major radioactive constituents is required, report the activity results for each constituent detected in pCi/L. If an isotopic-specific method is used, such as for cesium-134 or radioactive iodine, analyze the same or equivalent sample for the gamma emitting radionuclides using an approved method.

6. Composite Analysis Reporting: Compositing is only allowed at entry points that have been designated as using waters contaminated by effluent from a nuclear facility. After the composite sample is analyzed, report the result on separate lines. Each line will have a different sample date, the actual sample collection date for the monthly/quarterly samples, but the result will be the same.

For data tracking purposes, PADWIS needs four quarters of data or three-monthly samples, depending on the contaminant, even though the result will be the same in each month/quarter.

Example:

- Quarterly composite result for strontium-90 at EP 101: 1.278 pCi/L
- Report the composite result as follows:
  - SDWA-4 line 1: Result = 1.278 pCi/L; Sample Date 02/09/2020
  - SDWA-4 line 2: Result = 1.278 pCi/L; Sample Date 05/17/2020
  - SDWA-4 line 3: Result = 1.278 pCi/L; Sample Date 08/23/2020
  - SDWA-4 line 4: Result = 1.278 pCi/L; Sample Date 10/15/2020

DATA FIELD	EXPLANATION
PWS ID	Enter the 7-digit public water system identification number to which these samples apply. Failure to enter the PWS ID will result in the water supplier not receiving credit for conducting the monitoring. If you do not know the PWS ID number, and the PWS cannot provide it to you, contact the local DEP or CHD office or check DWRS.
CONTAMINANT ID	Enter the 4-digit contaminant identification code for the parameter being reported. See Table 7-3. Other major radioactive constituents – contact DEP for additional information
ANALYSIS METHOD	Enter the 3-digit code of the approved analysis method used to analyze the samples (see Section 8).
RESULT	Enter the result of each sample analyzed to at least 3 decimal places if the result is a valid detect. Do not round. If any result is less than the EPA specified method detection limit, ***report the result as zero (0)***. Note that the EPA detection limit is a whole number. A. **Gross Beta:** Report results in pCi/L. If the gross beta result exceeds 50 pCi/L, the same or equivalent sample should be analyzed for potassium-40. If the gross beta particle activity minus the naturally occurring potassium-40 activity exceeds the screening level (50 or 15 pCi/L), analyze the sample for the major radioactive constituents. B. **Potassium-40 (Optional):** Report results in pCi/L. Elemental potassium may be analyzed and reported instead. Report the elemental potassium concentration in mg/L. The potassium-40 activity will be calculated by PADWIS using the following formula: $potassium\ concentration\ (\frac{mg}{L})\ x\ (0.82\ \frac{pCi}{mg})\ =\ potassium_{40}\ (\frac{pCi}{L})$ C. **Tritium and Strontium-90:** Report all results in pCi/L. D. **Iodine-131:** Systems designated as contaminated collect 5 consecutive daily samples per quarter for iodine-131. Report all results in pCi/L. E. **Major radioactive constituents (gross beta emitters):** If the gross beta result exceeds the screening level (50 or 15 pCi/L) or if the entry point is on increased monthly monitoring, analyze the sample for the major radioactive constituents. Contact DEP for additional details and instructions for reporting those individual constituents that are detected.
LOWER LIMIT OF DETECTION (LLD)	Report the measured LLD for each radiological contaminant. If the LLD is above the EPA specified method detection limit, the result is not valid and *should not be reported*.

DATA FIELD	EXPLANATION
COUNTING ERROR (CE)	Leave blank – does not apply.
ANALYSIS DATE	Enter the date (MMDDYY) on which the sample analysis was performed or if the analysis spanned more than one day, the date on which the sample analysis result was obtained.
LOCATION/ENTRY POINT ID	Enter the 3-digit Entry Point ID number assigned to the sampling point by the local DEP or CHD office. If the water supplier has not provided this ID number to you, then contact the water supplier or the local DEP or CHD office. Entry Point ID numbers always begin with "1" (e.g., 100, 102, 103…).
LOCATION 2	Enter the source ID and name or enter MIX in the ID, if a blend of sources
SAMPLE DATE	Enter the date (MMDDYY) on which the sample was collected.
SAMPLE TYPE	Enter the appropriate letter code which corresponds to the type of sample collected as follows: C = Check: Confirmation samples taken in response to repeat or initial samples that are detected at a level in excess of the MCL. E = Entry Point: Samples taken at the entry point to the distribution system. S = Special: A supplier may wish to collect and have analyzed special samples to meet their own need, or may be required by DEP or a CHD to take samples to fulfill a special requirement. For example, a PWS may be asked to take delinquent samples after a monitoring period has ended. Such samples are coded "S" to distinguish them from routine "E" samples which may be taken during the same period. R = Raw Water: A supplier may wish to collect and have analyzed samples of raw water to meet their particular need, such as new source sampling. Such samples will not be credited toward routine monitoring requirements P = Plant: Performance monitoring samples that are collected after the radionuclide treatment process, but before the entry point sampling location.
SAMPLE TIME	Enter the time the sample was collected in Military Time. (e,g., enter 7:00 pm as 1900
LAB ID	Enter the 5-digit PA Certification Identification Code assigned to the laboratory that conducted the analysis.
SAMPLE ID	(Optional) Enter the unique laboratory sample identification

SECTION 8: SUMMARY OF CODES FOR REPORTING MAN-MADE RADIOLOGICALS

Please note that there are additional online methods approved for these analyses that are not included in the tables below. Refer to the current version of 40 CFR 141.25 for a listing of all approved methods.

PARAM NAME	PARAM ID	ANALYSIS METHOD	ANALYSIS METHOD AVAILABILITY	DEP METHOD CODE
Gross Beta by Evaporation	4100	EPA 900.0 - Prescribed Procedures for Measurement of Radioactivity in Drinking Water (EPA/600/4-80-032) August 1980.	National Technical Information Service (NTIS): PB 80-224744	401
		EPA 900.0 Rev 1.0 -Gross Alpha and Gross Beta Radioactivity in Drinking Water (EPA 815-B-18-002) February 2017	National Service Center for Environmental Publications (EPA Method 900.0 Rev 1.0).	
		Interim Radiochemical Methodology for Drinking Water (EPA 600/4-75-008) (revised) March 1976 – Page 1	National Technical Information Service (NTIS): PB 253258	
		EPA 00-01 - Radiochemistry Procedures Manual (EPA 520/5-84-006) December 1987	National Technical Information Service (NTIS): PB 84-215581	
		Radiochemical Analytical Procedures for Analysis of Environmental Samples, March 1979 – Page 1	National Technical Information Service (NTIS): EMSL LV 053917	
		SM 302 - Standard Methods for the Examination of Water and Wastewater, 13th (1971) Edition	American Water Works Assn. (AWWA) - Included in 13th Edition of Standard Methods (1971)	

PARAM NAME	PARAM ID	ANALYSIS METHOD	ANALYSIS METHOD AVAILABILITY	DEP METHOD CODE
		SM 7110 B - Standard Methods for the Examination of Water and Wastewater, 17th (1989), 18th (1992),19th (1995), 20th (1998), 21st (2005), 22nd (2012) and 23rd (2017) Editions	American Water Works Assn. (AWWA) - Included in 17th (1989), 18th (1992), 19th (1995), 20th (1998), 21st (2005), 22nd (2012) and 23rd (2017) Editions of Standard Methods	
		USGS R-1120-76 - Methods for the Determination of Radioactive Substances in Water and Fluvial Sediments	U.S. Geological Survey - Found in Chapter A5 of Book 5, Techniques of Water- Resources Investigations of the USGS (1977)	
Gross Beta by Liquid Scintillation	4100	SM 7110 D-17 – Standard Methods for the Examination of Water and Wastewater	Online version	427
		ASTM D7283-17	ASTM International Only method listed may be used.	
Strontium-90 using Radiochemical Methodology	4174	EPA 905.0 - Prescribed Procedures for Measurement of Radioactivity in Drinking Water (EPA/600/4-80-032) August 1980	National Technical Information Service (NTIS): PB 80-224744	403
		EPA - Interim Radiochemical Methodology for Drinking Water (EPA 600/4-75-008) (revised) March 1976, Page 29	National Technical Information Service (NTIS) PB 253258	
		EPA Sr-04 Radiochemistry Procedures Manual (EPA 520/5-84-006) December 1987	National Technical Information Service (NTIS) PB 84-215581	
		EPA - Radiochemical Analytical Procedures for Analysis of Environmental Samples, March 1979, Page 65	National Technical Information Service (NTIS)EMSL LV 053917	

PARAM NAME	PARAM ID	ANALYSIS METHOD	ANALYSIS METHOD AVAILABILITY	DEP METHOD CODE
		SM 303 - Standard Methods for the Examination of Water and Wastewater, 13th (1971) Edition	American Water Works Assn. (AWWA) - Included in 13th Edition of Standard Methods (1971)	
		SM 7500-Sr B - Standard Methods for the Examination of Water and Wastewater, 17th (1989), 18th (1992), 19th (1995), 20th (1998), 21st (2005), 22nd (2012) and 23rd (2017) Editions	American Water Works Assn. (AWWA) - Included in 17th (1989), 18th (1992), 19th (1995), 20th (1998), 21st (2005), 22nd (2012) and 23rd (2017) Editions of Standard Methods	
		USGS R-1160-76 - Methods for the Determination of Radioactive Substances in Water and Fluvial Sediments	U.S. Geological Survey - Found in Chapter A5 of Book 5, Techniques of Water- Resources Investigations of the USGS (1977)	
		DOE Sr-01 and Sr-02 - EML Procedures Manual, 28th (1998) or 27th (1990) Editions, Volumes 1 and 2; either edition.	Department of Energy (DOE) - Available through the Environmental Measurements Laboratory of DOE	
Tritium by Liquid Scintillation	4102	EPA 906.0 - Prescribed Procedures for Measurement of Radioactivity in Drinking Water (EPA/600/4-80-032) August 1980	National Technical Information Service (NTIS) - PB 80-224744	410
		EPA - Interim Radiochemical Methodology for Drinking Water (EPA 600/4-75-008) (revised) March 1976, Page 34	National Technical Information Service (NTIS) - PB 253258	
		EPA H-02 - Radiochemistry Procedures Manual (EPA 520/5-84-006) December 1987	National Technical Information Service (NTIS) - PB 84-215581	

PARAM NAME	PARAM ID	ANALYSIS METHOD	ANALYSIS METHOD AVAILABILITY	DEP METHOD CODE
		EPA - Radiochemical Analytical Procedures for Analysis of Environmental Samples, March 1979, Page 87	National Technical Information Service (NTIS) - EMSL LV 053917	
		SM 306 - Standard Methods for the Examination of Water and Wastewater, 13th (1971) Edition	American Water Works Assn. (AWWA) - Included in 13th Edition of Standard Methods (1971)	
		SM 7500-^{3}H B - Standard Methods for the Examination of Water and Wastewater, 17th (1989), 18th (1992), 19th (1995), 20th (1998), 21st (2005), 22nd (2012) and 23rd (2017) Editions	American Water Works Assn. (AWWA) - Included in 17th (1989), 18th (1992), 19th (1995), 20th (1998), 21st (2005), 22nd (2012) and 23rd (2017) Editions of Standard Methods	
		ASTM D4107-91, 98, 02 - Annual Book of ASTM Standards, Vol 11.01 and 11.02	ASTM International - any year containing the cited version of the method may be used.	
		USGS R-1171-76 - Methods for the Determination of Radioactive Substances in Water and Fluvial Sediments	U.S. Geological Survey - Found in Chapter A5 of Book 5, Techniques of Water- Resources Investigations of the USGS (1977)	
Radioactive Iodine by Gamma-ray Spectrometry	4264	EPA 901.1 - Prescribed Procedures for Measurement of Radioactivity in Drinking Water (EPA/600/4-80-032) August 1980	National Technical Information Service (NTIS) - PB 80-224744	416
		EPA - Radiochemical Analytical Procedures for Analysis of Environmental Samples, March 1979, Page 92	National Technical Information Service (NTIS) - EMSL LV 053917	

PARAM NAME	PARAM ID	ANALYSIS METHOD	ANALYSIS METHOD AVAILABILITY	DEP METHOD CODE
		SM 7120 - Standard Methods for the Examination of Water and Wastewater, 19th (1995), 20th (1998), 21st (2005), 22nd (2012) and 23rd (2017) Editions	American Water Works Assn. (AWWA) - Included in 19th (1995), 20th (1998), 21st (2005), 22nd (2012) and 23rd (2017) Editions of Standard Methods	
		ASTM D3649-91, 98a, 06 - Annual Book of ASTM Standards, Vol. 11.02	ASTM International - any year containing the cited version of the method may be used.	
		DOE Ga-01-R (listed as Section 4.5.2.3) - EML Procedures Manual, 28th (1998) or 27th (1990) Editions, Volumes 1 and 2; either edition.	Department of Energy (DOE) - Method Ga-01-R is listed as section 4.5.2.3. Available through the Environmental Measurements Laboratory of DOE	
Radioactive Iodine Radiochemical using Precipitation Method	4264	EPA 902.0 - Prescribed Procedures for Measurement of Radioactivity in Drinking Water (EPA/600/4-80-032) August 1980	National Technical Information Service (NTIS) - PB 80-224744	415
		EPA - Interim Radiochemical Methodology for Drinking Water (EPA 600/4-75-008) (revised) March 1976, Page 6	National Technical Information Service (NTIS) - PB 253258	
		SM 7500-I B - Standard Methods for the Examination of Water and Wastewater, 17th (1989), 18th (1992),19th (1995), 20th (1998), 21st (2005), 22nd (2012) and 23rd (2017) Editions	American Water Works Assn. (AWWA) - Included in 17th (1989), 18th (1992), 19th (1995), 20th (1998), 21st (2005), 22nd (2012) and 23rd (2017) Editions of Standard Methods	

PARAM NAME	PARAM ID	ANALYSIS METHOD	ANALYSIS METHOD AVAILABILITY	DEP METHOD CODE
Radioactive Iodine Radiochemical using Ion Exchange Method	4264	SM 7500-I C - Standard Methods for the Examination of Water and Wastewater, 17th (1989), 18th (1992),19th (1995), 20th (1998), 21st (2005), 22nd (2012) and 23rd (2017) Editions	American Water Works Assn. (AWWA) - Included in 17th (1989), 18th (1992), 19th (1995), 20th (1998), 21st (2005), 22nd (2012) and 23rd (2017) Editions of Standard Methods	429
		*ASTM D4785-93, 00a, 08 - Annual Book of ASTM Standards, Vol. 11.01 and 11.02	ASTM International - any year containing the cited version of the method may be used.	
Radioactive Iodine Radiochemical using Distillation Method	4264	EPA - Interim Radiochemical Methodology for Drinking Water (EPA 600/4-75-008) (revised) March 1976, Page 9	National Technical Information Service (NTIS) - PB 253258	426
		SM 7500-I D - Standard Methods for the Examination of Water and Wastewater, 17th (1989), 18th (1992),19th (1995), 20th (1998), 21st (2005), 22nd (2012) and 23rd (2017) Editions	American Water Works Assn. (AWWA) - Included in 17th (1989), 18th (1992), 19th (1995), 20th (1998), 21st (2005), 22nd (2012) and 23rd (2017) Editions of Standard Methods	

Differences from EPA's table in 40CFR141.25

- * EPA lists ASTM D4785 as a gamma ray spectrometry method for I-131 and gamma emitters. However, according to BoL, it is technically a radiochemical method for just iodine using ion exchange. The method first separates I-131 from the water sample and then counts it on a gamma detector.
    - DEP lists D4785 as Radioactive Iodine Radiochemical using Ion Exchange Method.
- EPA lists EPA 902.0, EPA p. 6 and 9, and ASTM D3649 as "iodine radiochemical." However, DEP is more specific:
    - EPA 902.0 and EPA page 6: Iodine using Radiochemical Precipitation Method.
    - EPA page 9: Radioactive Iodine using Radiochemical Distillation Method.
    - ASTM D3649 is a gamma-ray spectrometry method.

SECTION 9: INSTRUCTIONS FOR SDWA CORRECTION FORMS

The SDWA correction forms are for the correction of ***previously*** submitted data no longer in DWELR. Omitted sample results 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 available on-line at www.depgreenport.state.pa.us/elibrary/Search. Enter "*SDWA*" in the Document Name field. Enter all the correct information as it should have been submitted. In the 'Submitted' sections, only the incorrect information should be entered. This information is required to identify the record.

Distribute SDWA corrections 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	PA DEP SDWA MONITORING DATA
10TH FLOOR RCSOB	10TH FLOOR RCSOB
PO BOX 8467	400 MARKET STREET
HARRISBURG PA 17105-8467	HARRISBURG PA 17101

Corrections may be submitted by fax; the current DEP Data Management fax number can be found by searching for document 3930-FM-BSDW0560 in eLibrary at the following link: http://www.depgreenport.state.pa.us/elibrary/Search. If a large volume of corrections is required, please first contact DEP's Bureau of Safe Drinking Water, PADWIS section at 717-772-4018 or ra-padwis@pa.gov. 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 10: CASE STUDIES

Case Study 1: Gross Alpha substitution

The Three-Mile Water Authority collected repeat monitoring samples in May 2020. All four contaminants, gross alpha, radium-226, radium-228, and uranium were due.

PWS ID: 7679999
Entry Point: 101
Monitoring Period: January 1 through December 31, 2020 (during repeat monitoring, the monitoring period is the entire required year).

Contaminant	Sample Date	Analysis Date	Result	Lab Detection Limit
Gross Alpha	05/09/2020	07/22/2020	0 pCi/L $\pm$ 2.0	2.54 pCi/L
Radium-228	05/09/2020	07/22/2020	1.192 pCi/L	0.768 pCi/L

The Three-Mile Water Authority and the laboratory discussed before sampling that radium-226 and uranium would not be sampled. Three-Mile wanted DEP to substitute gross alpha for radium-226 and uranium, unless the criteria for substitution were not met.

Criteria for substitution:
- May substitute gross alpha for radium-226, if gross alpha plus the counting error $\leq$ 5 pCi/L
- May substitute gross alpha for uranium, if gross alpha plus the counting error $\leq$ 15 pCi/L

Since the criteria were met, and gross alpha was non-detect, radium 226 and uranium were not analyzed. There were no MCL exceedances for this monitoring period.

The following page displays a correctly completed SDWA-4 form in DWELR for this system.

Safe Drinking Water Act

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

VIEW and EDIT RECORDS

Click **here** for a Printer Friendly Version

View a Monitoring Calendar

SDWA-4

Current Lab Certifications | Contaminants not Requiring Certification

	PWSID	Contam ID	Analysis Method	Result	Lower Limit of Detection	Counting Error	Analysis Date	Loc/EP ID	Loc/EP ID 2	Sample Date	Sample Type	Sample Time	Lab ID	Sample ID	Record ID
	Sort												Sort		
	7679999	4002	401	0.0	2.54000	2.0	072220	101		050920	E	1030	01912		STUDENTE_600
	7679999	4030	408	1.192	0.76800		072220	101		050920	E	1030	01912		STUDENTE_601

Case Study 2: Gross Alpha MCL Exceedance and Gross Beta Routine Monitoring

The Cooling Tower Water Authority has one entry point. They began their repeat monitoring in February 2020 for the natural radiological contaminants. The results are shown in the table below:

PWS ID: 7689999
Entry Point: 101
Monitoring Period: January 1 through December 31, 2020

Contaminant	Sample Date	Analysis Date	Result	Lab Detection Limit
Gross Alpha	02/07/2020	03/30/2020	22.576 pCi/L ± 3.0	3.031 pCi/L
Radium-226	02/07/2020	03/30/2020	2.042 pCi/L	0.827 pCi/L
Radium-228	02/07/2020	03/30/2020	1.739 pCi/L	0.671 pCi/L
Uranium	02/07/2020	03/30/2020	4.284 ug/L	0.198 ug/L

Gross Alpha: Substitutions are not permitted since gross alpha exceeds the MCL of 15 pCi/L. The result shown above for gross alpha is ***unadjusted***. The laboratory measured gross alpha using an evaporative procedure, so radon analysis was not necessary. However, because uranium was analyzed, the ***state*** will subtract uranium from the gross alpha result. The ***adjusted*** gross alpha value used to determine compliance is 19.490 pCi/L (22.361 pCi/L – 2.870 pCi/L), which will be rounded to 19 pCi/L. Because the adjusted gross alpha value still exceeds the MCL of 15 pCi/L, the system will be required to conduct quarterly monitoring for gross alpha starting in the April-June 2020 quarter.

Uranium: The laboratory method provides the uranium result as a mass in ug/L, so it is converted to an activity in pCi/L before being reported to the state. Using the formula 4.284 ug/L is converted to 2.870 pCi/L (uranium mass in ug/L X 0.67 pCi/ug = uranium activity in pCi/L).

Gross Beta: The Cooling Tower Water Authority was also designated by DEP as vulnerable to beta particle or photon radioactivity.

The system also conducts their routine gross beta monitoring in 2020. The results from the 1st quarter for EP 101 are:

Contaminant	Sample Date	Analysis Date	Result	Lab Detection Limit
Gross Beta	02/07/2020	03/30/2020	5.145 pCi/L	2.79 pCi/L
Tritium	02/07/2020	03/30/2020	1400.032 pCi/L	800 pCi/L
Strontium-90	02/07/2020	03/30/2020	ND	1.88 pCi/L

The following page displays a correctly completed SDWA-4 form for this system. Note that all results from the first quarter may be reported on the same form.

Safe Drinking Water Act

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

VIEW and EDIT RECORDS

Click here for a Printer Friendly Version

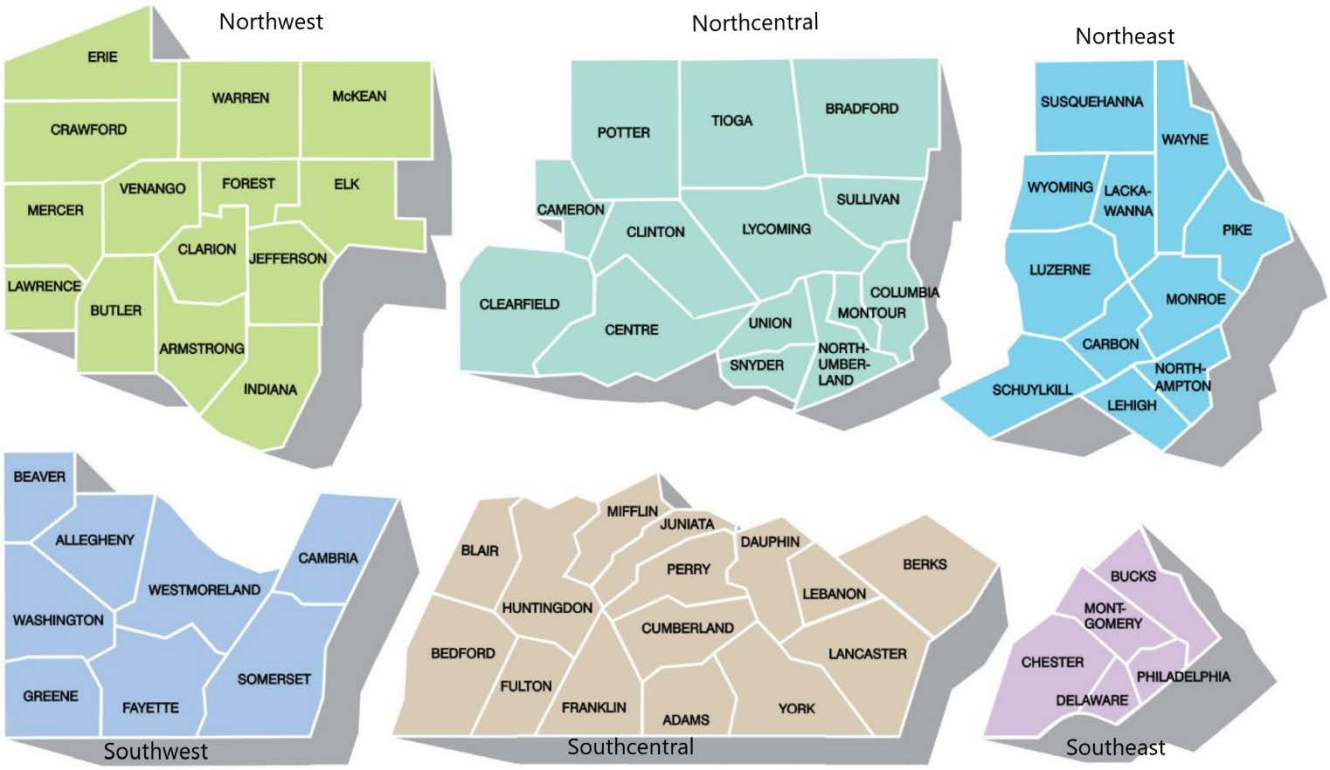
View a Monitoring Calendar

SDWA-4

Current Lab Certifications | Contaminants not Requiring Certification

	PWSID	Contam ID	Analysis Method	Result	Lower Limit of Detection	Counting Error	Analysis Date	Loc/EP ID	Loc/EP ID 2	Sample Date	Sample Type	Sample Time	Lab ID	Sample ID	Record ID
	Sort												Sort		
	7679999	4002	401	0.0	2.54000	2.0	072220	101		050920	E	1030	01912		STUDENTE_602
	7679999	4030	408	1.192	0.76800		072220	101		050920	E	1030	01912		STUDENTE_603
	7689999	4002	401	22.576	3.03100	3.0	033020	101		020720	E	0930	01912		STUDENTE_604
	7689999	4020	417	2.042	0.82700		033020	101		020720	E	0930	01912		STUDENTE_605
	7689999	4030	419	1.739	0.67100		033020	101		020720	E	0930	01912		STUDENTE_606
	7689999	4006	421	2.87	0.19800		033020	101		020720	E	0930	01912		STUDENTE_607
	7689999	4100	401	5.145	2.79000		033020	101		020720	E	0930	01912		STUDENTE_608
	7689999	4102	410	1400.032	800.00000		033020	101		020720	E	0930	01912		STUDENTE_609
	7689999	4174	403	0.0	1.88000		033020	101		020720	E	0930	01912		STUDENTE_610

APPENDIX I: DEPARTMENT OF ENVIRONMENTAL PROTECTION
FIELD OPERATIONS REGIONAL OFFICES AND EMERGENCY PHONE NUMBERS



DEP Regional Offices

Northwest Region
230 Chestnut St.
Meadville, PA 16335-3481
Main Telephone: 814-332-6945
24-Hour Emergency: 800-541-2050

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: 800-541-2050

Counties: *Bradford, Cameron, Centre, Clearfield, 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: 800-541-2050

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: 800-541-2050

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: 800-541-2050

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

For the most recent emergency numbers, search for document 3930-FM-BSDW0560 on eLibrary at http://www.depgreenport.state.pa.us/elibrary/Search.