

Sacramento County  
Environmental Management Department

**Community Water Systems and Non-Transient Non-Community  
Assessment of Historical Radionuclide Monitoring**

**Purpose of this form: To determine whether radionuclide monitoring frequency may be reduced on the basis of historical data, as allowed under the new Federal and State Radionuclide Rules.**

*Complete a separate form for each active source serving your water system.  
Submit to Sacramento County Environmental Management Department – Small Water Systems  
Program prior to implementing a reduced monitoring frequency.*

<b>Water System Name:</b> _____	<b>Water System No.:</b> _____
<b>Source Name:</b> _____	<b>Primary Station Code:</b> _____

**Step 1: Has Historical Monitoring for Gross Alpha Been Completed?**

Have four consecutive quarters of Gross Alpha monitoring been completed for this source since **January 1, 2001**?

- ☐ **Yes** - monitoring completed. Please fill out **Table 1** below.
- ☐ **No** - The system must complete four consecutive quarters<sup>1</sup> of Gross Alpha monitoring for this source by December 31, 2007. (See cover letter)

**TABLE 1 - Gross Alpha (GA) Data**

Column 1	Column 2	Column 3	Column 4	Column 5 (to be used in Steps 3 & 4)
Date of Sample	GA Result <sup>2</sup> (pCi/L)	CE <sup>3</sup>	Multiply $0.84 \times CE$ <sup>4</sup>	GA Result + $(0.84 \times CE)$ (Sum of values in Columns 2 and 4)
Average/composite				

**Step 2: Determination of Reduced Monitoring Frequency for Gross Alpha<sup>5</sup>**

*The reduced monitoring frequency is based on the average/composite shown in Table 1, Column 2.  
Choose the appropriate frequency below.*

- ☐ **One sample every nine years** if the average/composite of the monitoring results is below 3 pCi/L
- ☐ **One sample every six years** if the average/composite of the monitoring results is greater than or equal to 3 pCi/L but less than or equal to 7.5 pCi/L
- ☐ **One sample every three years** if the average/composite of the monitoring results is greater than 7.5 pCi/L but less than or equal to 15 pCi/L
- ☐ **Quarterly** if the average/composite of the monitoring results is greater than 15 pCi/L

<sup>1</sup> For Gross Alpha, Uranium, Radium-226 and Radium-228, and Total Radium, the Department may waive the final two quarters of initial monitoring if the results from the first two quarters are below the DLR(s).

<sup>2</sup> For negative values and values less than the DLR (i.e. ND) assign a value of zero (0).

<sup>3</sup> CE = Counting Error.

<sup>4</sup>  $0.84 \times CE$  is the 95% one-tailed confidence interval for the counting error ( $1.65/1.96 = 0.84$ )

<sup>5</sup> Use the average of the four Gross Alpha analysis results in Table 1 Column 2 to determine the reduced monitoring frequency for this source.

### Step 3: Can the Gross Alpha Measurements be Used to Satisfy the Monitoring Requirements for Uranium and Radium-226?

The Gross Alpha measurement may be substituted for Radium-226 and Uranium analyses if the four-quarter average/composite of the *Gross Alpha result plus*  $0.84 \times CE^4$  does not exceed **5 pCi/L** (See Table 1, Column 5). Please answer the following question:

Is Gross Alpha particle activity  $\leq 5$  pCi/L, based on the four-quarter average/composite of  $GA + (0.84 \times CE)$  from Table 1?

- ☐ **Yes** - No additional monitoring is required except for Radium-228. Skip to Step 7
- ☐ **No** - Go to Step 4.

### Step 4: Has Historical Monitoring for Uranium Been Completed?

If the Gross Alpha particle activity is  $> 5$  pCi/L, based on the four-quarter average or composite of  $GA + (0.84 \times CE)$  from Table 1, then **monitoring for Uranium is required**.

Have four consecutive quarters of Uranium monitoring been completed for this source since **January 1, 2001**?

- ☐ **Yes** - monitoring completed. Please fill out **Table 2** below.
- ☐ **No** - The system must complete four consecutive quarters<sup>1</sup> of Uranium monitoring for this source by December 31, 2007.

**Table 2 - Uranium Data**

Column 1	Column 2	Column 3	Column 4
Sample Date	Uranium Result (pCi/L)	GA Result + $(0.84 \times CE)$ (Copy values from Table 1 Column 5)	$[GA + (0.84 \times CE)]$ - Uranium (To calculate the GA minus Uranium value the analysis results for GA and Uranium must come from the same sample)
<b>Average/composite</b>			

### Step 5: Determination of Reduced Monitoring Frequency for Uranium<sup>6</sup>

The reduced monitoring frequency is based on the average/composite shown in Table 2, Column 2. Choose the appropriate frequency below.

- ☐ **One sample every nine years** if the average/composite of the monitoring results is below 1 pCi/L
- ☐ **One sample every six years** if the average/composite of the monitoring results is greater than or equal to 1 pCi/L but less than or equal to 10 pCi/L.
- ☐ **One sample every three years** if the average/composite of the monitoring results is greater than 10 pCi/L but less than or equal to 20 pCi/L
- ☐ **Quarterly** if the average/composite of the monitoring results is greater than 20 pCi/L

<sup>6</sup> Use the average of the four Uranium analysis results or the result of the composited sample in Table 2 Column 2 to determine the reduced monitoring frequency for this source.

### Step 6: Has Historical Monitoring for Radium-226 Been Completed?

Is the Gross Alpha particle activity minus Uranium  $\leq 5$  pCi/L, based on the four-quarter average/composite of  $[GA + (0.84 \times CE)] - \text{Uranium}$  (from Table 2, fourth column)?

- ☐ **Yes - No additional monitoring is required except for Radium-228. Skip to Step 7**
- ☐ **No - Monitoring for Radium-226 is Required.** Please answer the following question:

Have four consecutive quarters of Radium-226 monitoring been completed for this source since **January 1, 2001**?

- ☐ **Yes** - monitoring completed. Please fill out **Table 3** below.
- ☐ **No** - The system must complete four consecutive quarters<sup>1</sup> of Radium-226 monitoring for this source by December 31, 2007.

**Table 3 - Radium-226 Data**

Sample Date	Radium-226 Result (pCi/L)

### Step 7: Initial Monitoring for Radium-228

- All community water systems must complete the initial monitoring requirement for Radium-228
- The system must complete four consecutive quarters<sup>1</sup> of Radium-228 monitoring for this source by December 31, 2007. (See cover letter)

Note: After the initial monitoring for Radium-228 is completed, water systems will only need to monitor for Radium-226 and Radium-228 if the measured Gross Alpha particle activity minus Uranium exceeds 5 pCi/L. The reduced monitoring frequency for Radium-226 and Radium-228 would be based on the combined Radium value (i.e. Radium-226 + Radium-228), and would be determined when the analysis results for Radium-228 become available.

\_\_\_\_\_  
Name of Water System Representative

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Phone