

Answer

GW System,
serving 300, taking
quarterly TCR
samples

- Where, when, & how many chlorine samples should this system take?
 - The same number and at the same time and place as TCR

**Answer to Case Study 1
– Great View –
Question 1**

Case Studies

Answer

GW System,
serving 300, taking
quarterly TCR
samples

- What is the system's RAA for chlorine?
 - .4 mg/L
 - $1 + 1.5 + 1 + 1.5 + 2 + 1 + 3 + 1.5 + 1 + 1 + 1.5 = 17$
 - $7/12 = 1.4$ mg/L

**Answer to Case Study 1
– Great View –
Question 2**

Case Studies

Answer

GW System,
serving 300, taking
quarterly TCR
samples

- What is the system required to report to the state within 10 days?
 - All of the above

**Answer to Case Study 1
– Great View –
Question 3**

Case Studies

Answer

GW System,
serving 300, taking
quarterly TCR
samples

- Where, when, & how many TTHM & HAA5 samples should this system take?
 - sample per treatment plant; in the month of warmest water temperature; at the MRT

**Answer to Case Study 1
– Great View –
Question 4**

Case Studies

Answer

GW System,
serving 300, taking
quarterly TCR
samples

- What is the system's RAA for TTHMs?
 - 0.070 mg/L

**Answer to Case Study 1
– Great View –
Question 5**

Case Studies

Answer

GW System,
serving 11,000,
taking monthly
TCR samples due
to TC + in July 05

- How many chlorine samples should this system take in August 2005?
 - 10 samples – The same as the number of TCR samples required.

**Answer to Case Study 2
– Smithville –
Question 1**

Case Studies

Answer

GW System, serving 11,000, taking monthly TCR samples due to TC+ in July 05

- Where and when should the system take chlorine samples?
 - Same time and place as TCR

**Answer to Case Study 2
– Smithville –
Question 2**

Case Studies

Answer

GW System, serving 11,000, taking monthly TCR samples due to TC+ in July 05

- Where, when, & how many TTHM & HAA5 samples should this system take?
 - sample per treatment plant per quarter at MRT

**Answer to Case Study 2
– Smithville –
Question 3**

Case Studies

Answer

GW System, serving 11,000, taking monthly TCR samples due to TC+ in July 05

- What is the system's RAA for TTHMs & HAA5?
 - TTHM = 0.065 mg/L & HAA5 = 0.078 mg/L
 - TTHMs RAA
 - $0.09 + 0.05 + 0.08 + 0.04 = 0.26$
 - $0.26/4 = 0.065$ mg/L
 - HAA5s RAA
 - $0.07 + 0.08 + 0.07 + 0.09 = 0.31$
 - $0.31/4 = 0.078$ mg/L

**Answer to Case Study 2
– Smithville –
Question 4**

Case Studies

Answer

GW System, serving 11,000, taking monthly TCR samples due to TC+ in July 05

- Does the system have to perform public notification?
 - Yes
 - MCL violation because the HAA5 RAA of 0.078 mg/L exceeds the MCL of 0.060 mg/L

**Answer to Case Study 2
– Smithville –
Question 5**

Case Studies

Answer

GW System, serving 11,000, taking monthly TCR samples due to TC+ in July 05

- What does the system need to do to return to compliance?
 - RAA in following quarter needs to be less than 0.060 mg/L

**Answer to Case Study 2
– Smithville –
Question 6**

Case Studies

Answer

SW System, serving 550. System has two conventional filtration plants

- Where, when, & how many chlorine samples should this system take?
 - The same number and at the same time and place as TCR

**Answer to Case Study 3
– Crystal Lake –
Question 1**

Case Studies

Answer

SW System,
serving 550.
System has two
conventional
filtration plants

- What is the system's RAA for chlorine?
 - 1.8 mg/L
 - $1 + 1.5 + 2 + 2 + 1 + 1.5 + 2 + 1 + 1 + 1.5 + 5 + 1.5 = 21$
 - $21/12 = 1.8 \text{ mg/L}$

**Answer to Case Study 3
– Crystal Lake –
Question 2**

Case Studies

Answer

SW System,
serving 550.
System has two
conventional
filtration plants

- Where, when, & how many TTHM & HAA5 samples should this system take?
 - sample per treatment plant per quarter at MRT

**Answer to Case Study 3
– Crystal Lake –
Question 3**

Case Studies

Answer

SW System,
serving 550.
System has two
conventional
filtration plants

- What is the system's RAA for TTHMs & HAA5?
 - TTHM = 0.049 mg/L & HAA5 = 0.043 mg/L
 - TTHMs RAA
 - $(0.09 + 0.06)/2 + (0.05 + 0.07)/2 + (0.03 + 0.02)/2 + (0.02 + 0.05)/2 = 0.195 \text{ mg/L}$
 - $0.195/4 = 0.049 \text{ mg/L}$
 - HAA5s RAA
 - $(0.02 + 0.04)/2 + (0.08 + 0.02)/2 + (0.04 + 0.04)/2 + (0.02 + 0.08)/2 = 0.17 \text{ mg/L}$
 - $0.17/4 = 0.043 \text{ mg/L}$

**Answer to Case Study 3
– Crystal Lake –
Question 4**

Case Studies

Answer

SW System,
serving 550.
System has two
conventional
filtration plants

- What is the system's required TOC removal percentage, actual TOC removal percentage, and actual TOC removal ratio?
 - 40%; 55.6%; 1.39
 - Required removal % = 40% (from 3 by 3 Matrix)
 - Actual removal % = 55.6% $((9-4)/9)$
 - Actual removal ratio = 1.39 $(55.6\% / 40.0\%)$

**Answer to Case Study 3
– Crystal Lake –
Question 5**

Case Studies

Answer

SW System,
serving 550.
System has two
conventional
filtration plants

- Does the system need to perform public notification?
 - No.
 - Because the example assumed that the system had the same alkalinity and TOC numbers each month
 - Therefore the removal ratio would be the same for each month.
 - The removal ratio is 1.39 for the year which is greater than 1.00 so the system is in compliance.

**Answer to Case Study 3
– Crystal Lake –
Question 6**

Case Studies