

BIOENVIRONMENTAL ENGINEERING (BEE) BLOCK 9 PRACTICE TEST (SAMPLE)

STUDY GUIDE



**SAMPLE STUDY GUIDE
WITH LIMITED QUESTIONS**

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THE FULL VERSION STUDY GUIDE**

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Introduction

Preparing for a certification exam can feel overwhelming, but with the right tools, it becomes an opportunity to build confidence, sharpen your skills, and move one step closer to your goals. At Examzify, we believe that effective exam preparation isn't just about memorization, it's about understanding the material, identifying knowledge gaps, and building the test-taking strategies that lead to success.

This guide was designed to help you do exactly that.

Whether you're preparing for a licensing exam, professional certification, or entry-level qualification, this book offers structured practice to reinforce key concepts. You'll find a wide range of multiple-choice questions, each followed by clear explanations to help you understand not just the right answer, but why it's correct.

The content in this guide is based on real-world exam objectives and aligned with the types of questions and topics commonly found on official tests. It's ideal for learners who want to:

- Practice answering questions under realistic conditions,
- Improve accuracy and speed,
- Review explanations to strengthen weak areas, and
- Approach the exam with greater confidence.

We recommend using this book not as a stand-alone study tool, but alongside other resources like flashcards, textbooks, or hands-on training. For best results, we recommend working through each question, reflecting on the explanation provided, and revisiting the topics that challenge you most.

Remember: successful test preparation isn't about getting every question right the first time, it's about learning from your mistakes and improving over time. Stay focused, trust the process, and know that every page you turn brings you closer to success.

Let's begin.

How to Use This Guide

This guide is designed to help you study more effectively and approach your exam with confidence. Whether you're reviewing for the first time or doing a final refresh, here's how to get the most out of your Examzify study guide:

1. Start with a Diagnostic Review

Skim through the questions to get a sense of what you know and what you need to focus on. Your goal is to identify knowledge gaps early.

2. Study in Short, Focused Sessions

Break your study time into manageable blocks (e.g. 30 – 45 minutes). Review a handful of questions, reflect on the explanations.

3. Learn from the Explanations

After answering a question, always read the explanation, even if you got it right. It reinforces key points, corrects misunderstandings, and teaches subtle distinctions between similar answers.

4. Track Your Progress

Use bookmarks or notes (if reading digitally) to mark difficult questions. Revisit these regularly and track improvements over time.

5. Simulate the Real Exam

Once you're comfortable, try taking a full set of questions without pausing. Set a timer and simulate test-day conditions to build confidence and time management skills.

6. Repeat and Review

Don't just study once, repetition builds retention. Re-attempt questions after a few days and revisit explanations to reinforce learning. Pair this guide with other Examzify tools like flashcards, and digital practice tests to strengthen your preparation across formats.

There's no single right way to study, but consistent, thoughtful effort always wins. Use this guide flexibly, adapt the tips above to fit your pace and learning style. You've got this!

Questions

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- 1. Which device is a portable instrument that can identify many materials by comparing samples to a library?**
 - A. Dippers
 - B. The DR 900
 - C. Alpha samplers
 - D. HAZMATID Elite
- 2. CCRs must be distributed to which population?**
 - A. True
 - B. False
 - C. Only to state regulators
 - D. Only upon request
- 3. Which factor in the geologic and hydrogeologic category includes ground cover and vegetative characteristics?**
 - A. Ground cover and vegetative characteristics
 - B. Depth to groundwater
 - C. Ground water
 - D. Physical characteristics of aquifers
- 4. Which statement correctly defines pollution in the context of the material?**
 - A. Pollution Degrades the Quality or Usefulness of Water Not Creating an Actual Hazard to Public Health
 - B. Contamination Degrades the Quality or Usefulness of Water Without Causing a Public Health Hazard
 - C. Pollution Is the Same as Contamination
 - D. Contamination Degrades Water Quality but Creates an Immediate Public Health Hazard
- 5. Emission is defined as which term?**
 - A. The movement of contaminants through environmental media
 - B. The release or discharge of material from a source
 - C. The point of contact with contaminated medium
 - D. The contact of contaminants with the skin

- 6. Which step is when particles are combined and begin to settle?**
- A. Screening
 - B. Disinfectant added
 - C. Coagulants added
 - D. Coagulation and Flocculation
- 7. What describes the retardation, degradation, or adsorption of a contaminant?**
- A. Advection or convection
 - B. Dispersion
 - C. Attenuation
 - D. Vapor pressure
- 8. What should pool free available chlorine levels be?**
- A. 2 - 4 mg/L
 - B. 0.5 - 1 mg/L
 - C. 1 - 4 mg/L
 - D. 5 - 10 mg/L
- 9. What are the two types of aquifers?**
- A. Confined and Unconfined
 - B. Shallow and Deep
 - C. Perched and Artesian
 - D. Primary and Secondary
- 10. How often should a Community Water System have a sanitary survey performed?**
- A. Every 6 years
 - B. Every 5 years
 - C. Every 2 years
 - D. Every 3 years

Answers

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1. D
2. A
3. A
4. A
5. B
6. D
7. C
8. C
9. A
10. D

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Explanations

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1. Which device is a portable instrument that can identify many materials by comparing samples to a library?

- A. Dippers
- B. The DR 900
- C. Alpha samplers
- D. HAZMATID Elite**

Identifying a wide range of unknown materials on the spot by comparing what you measure to a library of known substances is what a portable spectroscopic identification device is all about. The HAZMATID Elite is built for this purpose: it's a handheld instrument that analyzes a sample and then matches the obtained spectrum to a built-in (or cloud) library of reference spectra to name the substance. This library-matching capability is what lets it identify many different materials quickly in the field, which is essential for hazmat response. Dippers, by contrast, are simple sampling tools used to collect material for later laboratory analysis—they don't identify substances on-site. The DR 900 and Alpha samplers are different kinds of field instruments that don't primarily rely on comparing spectra to a broad library to identify a wide range of unknown materials.

2. CCRs must be distributed to which population?

- A. True**
- B. False
- C. Only to state regulators
- D. Only upon request

Customer Confidence Reports are annual, public-facing updates that drinking water utilities must provide to the people they serve. They summarize water quality, potential contaminants, and compliance with standards for the previous year. The point is to inform the population that actually uses the water, so the report is distributed to customers and made accessible to the public—not limited to state regulators and not contingent only on a request. Utilities typically mail the report to customers and post it on the website or at the utility office, ensuring broad access. This transparency helps residents understand their water quality and any actions the utility is taking.

3. Which factor in the geologic and hydrogeologic category includes ground cover and vegetative characteristics?

- A. Ground cover and vegetative characteristics**
- B. Depth to groundwater
- C. Ground water
- D. Physical characteristics of aquifers

Ground cover and vegetation directly influence how rainfall becomes groundwater recharge. Plants intercept rain, promote infiltration through root channels, and return water to the atmosphere via evapotranspiration. These surface and vadose-zone processes control how much water actually enters the subsurface and reaches the aquifer, which is a key part of geologic and hydrogeologic factors governing groundwater behavior. The other options describe aspects of groundwater such as how deep the water table is, the water itself, or the intrinsic properties of the aquifer, but they don't capture how land cover and vegetation modulate recharge and subsurface movement.

4. Which statement correctly defines pollution in the context of the material?

- A. Pollution Degrades the Quality or Usefulness of Water Not Creating an Actual Hazard to Public Health**
- B. Contamination Degrades the Quality or Usefulness of Water Without Causing a Public Health Hazard
- C. Pollution Is the Same as Contamination
- D. Contamination Degrades Water Quality but Creates an Immediate Public Health Hazard

The concept being tested is the difference between pollution and contamination in relation to water quality and public health. The correct statement describes pollution as something that degrades the quality or usefulness of water without necessarily creating an actual public health hazard. This means a pollutant can make water taste, smell, or look bad or harm its suitability for uses like irrigation or recreation, even if it isn't currently causing a direct health risk to people. In practice, pollution is about impairment of water quality, not necessarily a detected hazard at all exposure levels. Contamination, while related, is typically understood as the presence of substances that could pose health risks. The option that uses contamination without a health hazard is inconsistent with that usual meaning, and the option that says contamination is the same as pollution ignores the nuanced difference between degradation of water quality and health risk. The option that implies contamination always creates an immediate health hazard overstates the certainty of risk, which isn't always the case.

5. Emission is defined as which term?

- A. The movement of contaminants through environmental media
- B. The release or discharge of material from a source**
- C. The point of contact with contaminated medium
- D. The contact of contaminants with the skin

Emission means the release or discharge of material from a source into the environment. This focuses on the act of substances leaving their source, such as gases venting from a stack or a chemical spill entering air or water. It's not about how contaminants move once released (that would be transport or dispersion), nor about the moment a contaminated medium is contacted or a person's skin exposure. Emissions are the actual emission event, often described by mass per time (like kilograms per hour).

6. Which step is when particles are combined and begin to settle?

- A. Screening
- B. Disinfectant added
- C. Coagulants added
- D. Coagulation and Flocculation**

Particles are brought together and prepared to settle during the coagulation and flocculation stage. Adding coagulants destabilizes the tiny, stable colloids, neutralizing their charges so they can start interacting. Then gentle mixing (flocculation) promotes collisions and binding among destabilized particles, forming larger clumps called flocs. These larger aggregates are heavy enough to begin settling in the next step. So, the combined process of coagulation and flocculation is the correct choice because it explicitly describes both destabilizing particles and forming settleable aggregates. Screening removes large debris, disinfectants address microbes, and adding coagulants alone starts coagulation but doesn't complete the formation of flocs needed for settling.

7. What describes the retardation, degradation, or adsorption of a contaminant?

- A. Advection or convection
- B. Dispersion
- C. Attenuation**
- D. Vapor pressure

Attenuation describes how a contaminant's presence decreases as it moves through a medium due to physical, chemical, and biological processes. Retardation is the slowing of movement caused by the contaminant sticking to soil or aquifer solids (sorption), so it travels more slowly than the water itself. Degradation refers to chemical or biological reactions that transform the contaminant into other compounds, reducing its concentration. Adsorption is the process of contaminant molecules binding to solid surfaces, removing them from the flowing water. When these processes occur together, they lessen both how far and how quickly the contaminant travels, which is the essence of attenuation. Advection or convection is about the bulk movement of water carrying the contaminant, not the reduction in concentration. Dispersion describes the spreading and dilution of the plume due to velocity variations, but it doesn't inherently account for removal or transformation of the contaminant. Vapor pressure concerns how readily a substance partitions into the vapor phase, not its attenuation in groundwater.

8. What should pool free available chlorine levels be?

- A. 2 - 4 mg/L
- B. 0.5 - 1 mg/L
- C. 1 - 4 mg/L**
- D. 5 - 10 mg/L

Maintaining a free chlorine residual in the pool is about keeping enough oxidant in the water to inactivate microbes while avoiding irritation and damage from too much chlorine. The range of 1 to 4 mg/L for free available chlorine gives that balance: it is high enough to reliably disinfect common pathogens and control chloramines, but not so high that it causes strong odor, eye irritation, or material wear. In practice, staying around 1–3 mg/L is common, with an upper limit near 4 mg/L in many standards. If the level falls below about 1 mg/L, disinfection can become inadequate and contaminants can persist. If it rises toward 5 mg/L or more, people may notice irritation and the water may taste and smell strongly of chlorine. Also remember that chlorine effectiveness is influenced by pH (optimal around 7.2–7.8) and by stabilizers like cyanuric acid, which can require slight adjustments to target ranges.

9. What are the two types of aquifers?

- A. Confined and Unconfined**
- B. Shallow and Deep
- C. Perched and Artesian
- D. Primary and Secondary

Groundwater storage is classified by whether there is an impermeable boundary above the aquifer. In a confined aquifer, water is trapped between impermeable layers, so it is pressurized and can rise in a well without pumping (an artesian condition). In an unconfined aquifer, the upper surface is the water table and directly interfaces with the atmosphere, with recharge from the surface and pumping drawing down the water table. Shallow vs deep describes how far the aquifer lies from the surface, not the fundamental type. A perched aquifer is a localized body of water above the main water table, not a general category of aquifers. Artesian refers to the pressure condition within a confined aquifer, not a separate type. Primary and secondary relate to porosity concepts, not the main way aquifers are classified.

10. How often should a Community Water System have a sanitary survey performed?

- A. Every 6 years
- B. Every 5 years
- C. Every 2 years
- D. Every 3 years**

Sanitary surveys are periodic evaluations of a public water system to identify potential contamination sources and ensure safe operation. For community water systems, the standard cadence is every three years, conducted by the state drinking water program. This regular review covers source water, treatment, storage, distribution, and management practices, helping detect issues before they affect public health. The other cadences don't fit: five years is typical for non-community systems, two years is more frequent than required for communities, and six years would exceed the mandated interval. If significant changes occur, surveys can be done sooner, but the baseline requirement is every three years.

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Next Steps

Congratulations on reaching the final section of this guide. You've taken a meaningful step toward passing your certification exam and advancing your career.

As you continue preparing, remember that consistent practice, review, and self-reflection are key to success. Make time to revisit difficult topics, simulate exam conditions, and track your progress along the way.

If you need help, have suggestions, or want to share feedback, we'd love to hear from you. Reach out to our team at hello@examzify.com.

Or visit your dedicated course page for more study tools and resources:

<https://beeblock9.examzify.com>

We wish you the very best on your exam journey. You've got this!

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