

Wisconsin DNR Wastewater Operator Certification Practice Test (Sample)

Study Guide



Everything you need from our exam experts!

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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 parameter must be present for bacteria to effectively treat wastewater in secondary treatment?**
 - A. Organic carbon**
 - B. Oxygen**
 - C. Chlorine**
 - D. Nitrogen**

- 2. Flow meters must be calibrated annually. Which type of record should be kept?**
 - A. Internal records**
 - B. WDNR calibration records**
 - C. Public notices**
 - D. Equipment invoices**

- 3. The activated sludge (bio mass) collected in the final clarifier and returned to the secondary treatment process to mix with the incoming wastewater is:**
 - A. Mixed Liquor Suspended Solids (MLSS)**
 - B. Waste Activated Sludge (WAS)**
 - C. Mixed Liquor Volatile Suspended Solids (MLVSS)**
 - D. Return Activated Sludge (RAS)**

- 4. Which of the following is a typical location for in-plant flow meters?**
 - A. WAS**
 - B. Sidestream flows**
 - C. Sludge withdrawal volumes from storage tanks**
 - D. RAS**

- 5. Which option best describes the method used to determine flow in an open channel by measuring depth?**
 - A. Temperature probe**
 - B. Dissolved oxygen meter**
 - C. pH meter**
 - D. Weir height**

- 6. Rotary lobe pumps are self-priming, valveless, positive-displacement pumps.**
- A. False**
 - B. True**
 - C. Not applicable**
 - D. Sometimes**
- 7. If cavitation is occurring, what is the recommended action?**
- A. Increase pump speed**
 - B. Ignore the cavitation**
 - C. Replace pump**
 - D. Contact the consultant or pump service representative to determine the cause and corrective actions**
- 8. What is the most common triangular weir notch used for open-channel flow measurement?**
- A. 60-notch triangular**
 - B. 90-notch triangular**
 - C. 60- and 90-notch (triangular) combined**
 - D. V-notch**
- 9. Progressive cavity pumps are unreliable and can often run dry and fill with excessive grit.**
- A. True**
 - B. Not necessarily**
 - C. False**
 - D. Cannot be determined**
- 10. Air lift pumps are prone to plugging, especially as low return flow rates. Thus, operators should closely monitor these pumps to ensure sludge is being returned at all times.**
- A. False**
 - B. It depends on flow rate**
 - C. It is generally not a concern**
 - D. True**

Answers

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

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Explanations

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1. Which parameter must be present for bacteria to effectively treat wastewater in secondary treatment?

- A. Organic carbon**
- B. Oxygen**
- C. Chlorine**
- D. Nitrogen**

In secondary wastewater treatment, the organisms doing the work are aerobic bacteria that oxidize organic matter. They rely on oxygen to power their metabolism; as they respire, they transfer electrons to oxygen, breaking down pollutants more rapidly. Providing oxygen through aeration is what lets the activated sludge or other aerobic systems function effectively. Without oxygen, these bacteria can't carry out the intended oxidation, so removal of organics stalls and the treatment process falters. Organic carbon is the food for the microbes, but it won't drive the process without the oxygen they need. Chlorine would kill the bacteria, and nitrogen is important as a nutrient—but neither is the condition that enables the secondary treatment to work. Oxygen is the essential parameter.

2. Flow meters must be calibrated annually. Which type of record should be kept?

- A. Internal records**
- B. WDNR calibration records**
- C. Public notices**
- D. Equipment invoices**

Calibration records serve as the official proof that the flow meter has been checked and kept accurate, which is essential for trustworthy process control and regulatory reporting. In Wisconsin, these records are kept as WDNR calibration records, ensuring a standardized, regulator-facing documentation trail. They typically capture when the calibration was done, who performed it, the method and standards used, the instrument's details, the results and any adjustments, and the next due date. Having this specific record type means inspectors can quickly verify compliance and traceability. Internal records are useful for day-to-day housekeeping, but the regulator expects WDNR calibration records to demonstrate that annual calibration occurred. Public notices aren't relevant to instrument calibration, and equipment invoices don't confirm ongoing accuracy or calibration status.

3. The activated sludge (bio mass) collected in the final clarifier and returned to the secondary treatment process to mix with the incoming wastewater is:

- A. Mixed Liquor Suspended Solids (MLSS)**
- B. Waste Activated Sludge (WAS)**
- C. Mixed Liquor Volatile Suspended Solids (MLVSS)**
- D. Return Activated Sludge (RAS)**

Return Activated Sludge is the portion of settled biomass that is pumped from the final clarifier back into the aeration or secondary treatment process to mix with incoming wastewater. This return helps maintain an adequate concentration of active microorganisms in the system, preserving biological treatment efficiency and proper solids retention time. MLSS is the overall solids concentration in the mixed liquor, including both living biomass and inert material, not the action of returning sludge. MLVSS represents the organic (volatile) portion of MLSS, indicating the active biomass, but again it describes a measurement, not the recirculation itself. Waste Activated Sludge is the portion of sludge purposely removed from the system to control MLSS, not the material returned to the treatment process.

4. Which of the following is a typical location for in-plant flow meters?

- A. WAS**
- B. Sidestream flows**
- C. Sludge withdrawal volumes from storage tanks**
- D. RAS**

In-plant flow meters are placed where a process stream moves inside the plant so you can directly monitor how much liquid is being produced, transferred, or removed, which is essential for balancing processes and controlling operations. Sludge withdrawal volumes from storage tanks are a typical location because this line represents the actual rate at which processed sludge is leaving a storage area to go to digestion, dewatering, or further handling. Measuring flow here gives a clear, controllable metric of sludge production and load, which is crucial for maintaining proper sludge age, mass balance, and overall plant operation. Sidestream flows, WAS, or RAS are important process streams, but the common, practical spot for an in-plant flow meter to quantify sludge handling activity is on the sludge withdrawal from storage tanks.

5. Which option best describes the method used to determine flow in an open channel by measuring depth?

- A. Temperature probe**
- B. Dissolved oxygen meter**
- C. pH meter**
- D. Weir height**

Measuring depth to determine flow relies on a fixed hydraulic structure that links water stage to discharge. A weir provides a known relationship between head over its crest and the amount of water flowing over it. By recording the depth (the height of water above the crest) and using the weir's rating curve, you can convert that depth into a discharge value. The other instruments listed (temperature probe, dissolved oxygen meter, pH meter) measure water quality and do not translate depth into flow. So the method described is using the weir height.

6. Rotary lobe pumps are self-priming, valveless, positive-displacement pumps.

- A. False**
- B. True**
- C. Not applicable**
- D. Sometimes**

Rotary lobe pumps move liquid by trapping fixed volumes between rotating lobes and the casing. As the lobes turn, these sealed pockets form on the suction side, drawing liquid into the pump, and then migrate to the discharge side where they release the liquid. This creates a predictable, volume-based flow, which is the hallmark of a positive-displacement pump. They are considered valveless because there are no internal valves that open and close during the pumping cycle to control flow; the movement is governed entirely by the lobes' geometry and the casing. Any backflow prevention is usually provided by external components or system design, not by internal pump valves. The self-priming aspect comes from the pump's ability to evacuate air and draw liquid into the suction line as it starts, without requiring the suction line to be completely filled. In practice, self-priming performance depends on factors like suction lift, fluid viscosity, and proper venting, but rotary lobe pumps are generally viewed as self-priming within typical operating ranges.

7. If cavitation is occurring, what is the recommended action?

- A. Increase pump speed**
- B. Ignore the cavitation**
- C. Replace pump**
- D. Contact the consultant or pump service representative to determine the cause and corrective actions**

Cavitation means the pump suction is experiencing conditions that drop pressure below the liquid's vapor pressure, creating bubbles that collapse with damaging shock waves as the fluid moves. The appropriate step is to involve a qualified consultant or pump service representative to diagnose the root cause and decide the corrective actions, because Cavitation can be caused by issues like insufficient suction head, air leaks, clogged strainers, improper valve settings, or temperature and vapor-pressure changes, and fixing it safely requires expert assessment and specific adjustments. Increasing pump speed is not advisable since it often worsens cavitation by increasing flow demand and reducing the available suction head. Ignoring the symptom can lead to rapid wear or catastrophic failure, and replacing the pump without understanding the cause may not resolve the underlying problem.

8. What is the most common triangular weir notch used for open-channel flow measurement?

- A. 60-notch triangular**
- B. 90-notch triangular**
- C. 60- and 90-notch (triangular) combined**
- D. V-notch**

In open-channel flow measurement, the notch shape on a weir controls how discharge relates to the water depth over the notch. The 60-degree triangular notch is the standard choice because it provides a stable, predictable relationship between head over the notch and flow across a wide range of discharges. It's easy to calibrate, easy to construct in the field, and tends to give accurate readings under typical wastewater conditions. A V-notch is better suited for very low flows and can be more sensitive to disturbances, while a 90-degree triangular notch offers a different, narrower measurement range that's not as versatile for general use. For these reasons, the 60-degree triangular notch remains the most common option.

9. Progressive cavity pumps are unreliable and can often run dry and fill with excessive grit.

- A. True**
- B. Not necessarily**
- C. False**
- D. Cannot be determined**

Progressive cavity pumps are positive-displacement machines that provide a steady flow even with thick sludges and some solids. They are generally reliable when operated within their design limits and with proper maintenance. Running dry is not normal and can quickly damage the pump because the elastomer stator and seals rely on the pumped liquid for lubrication and cooling. They can handle grit to a degree, but excessive grit accelerates wear on the stator and rotor, shortening life; this is why pre-screening and regular wear-part checks are important. So, the claim that these pumps are unreliable and often run dry with too much grit isn't accurate—the pumps are reliable when used and maintained correctly, and grit management is part of normal operation.

10. Air lift pumps are prone to plugging, especially as low return flow rates. Thus, operators should closely monitor these pumps to ensure sludge is being returned at all times.

- A. False**
- B. It depends on flow rate**
- C. It is generally not a concern**
- D. True**

Air lift pumps move sludge using air to lift a column of liquid and solids. When return flow is low, solids tend to settle and accumulate in the pump and piping, increasing the risk of plugging. If the pump becomes clogged or its discharge is reduced, sludge isn't returned as intended, which can upset the biological process and reduce treatment efficiency. Because plugging can happen more readily at low return flows, operators must monitor the pump closely to ensure sludge is being returned continuously and to spot signs of restriction early. This is why the statement is true.

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://widnrwastewaterop.examzify.com>

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

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